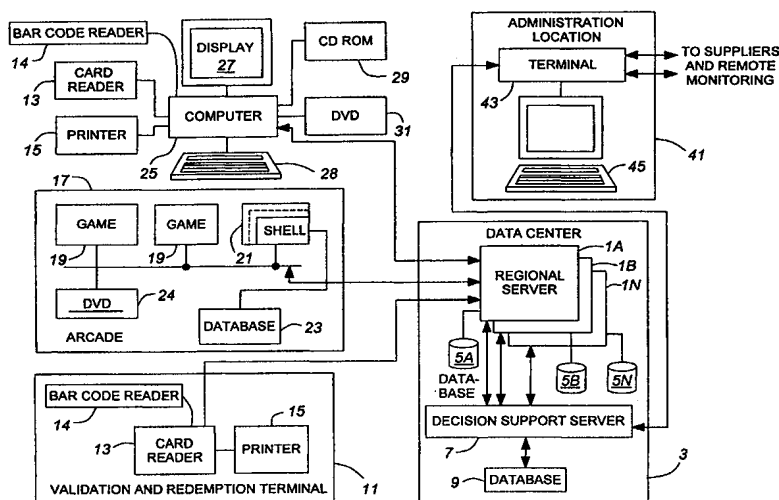




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : G06F 17/60	A1	(11) International Publication Number: WO 00/38088 (43) International Publication Date: 29 June 2000 (29.06.00)
(21) International Application Number: PCT/CA99/01198 (22) International Filing Date: 16 December 1999 (16.12.99) (30) Priority Data: 09/218,019 22 December 1998 (22.12.98) US (71)(72) Applicant and Inventor: KLAYH, John [CA/CA]; 383 Dovercourt Drive, Winnipeg, Manitoba R3Y 1G4 (CA). (74) Agents: BAKER, Harold, C. et al.; Pascal & Associates, P.O. Box 11121, Station H, Nepean, Ontario K2H 7T8 (CA).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>

(54) Title: SYSTEM FOR DISTRIBUTION AND REDEMPTION OF LOYALTY POINTS AND COUPONS**(57) Abstract**

A system for controlling a customer reward system comprising: a first database for storing customer identifications, and for accumulated loyalty points awarded to the customer, an administration terminal for establishing loyalty point values associated with any of plural predetermined activities, and for storing the values and identities of associated activities, in a second database, a reading terminal for reading the identity of a customer at a location of the terminal, first apparatus located in the region of the reading terminal for detecting an activity of the customer, and second apparatus for accessing the second database, looking up the activity of the customer, and depositing corresponding loyalty points in the first database in association with an identification of the customer.

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SYSTEM FOR DISTRIBUTION AND REDEMPTION OF LOYALTY POINTS AND COUPONSFIELD OF THE INVENTION

5 This invention relates to the field of data communications, and in particular to a method and a system for on-line global distribution and redemption of loyalty points and coupons.

BACKGROUND TO THE INVENTION

10 Electronic transaction processing and awarding of loyalty points by bank card issuers, airlines, etc. have come into widespread use. For example, retailers commonly use card swipe terminals which read information stored on a magnetic stripe carried by the card. The
15 information is received by telephone line at an administration office, where a computer checks the credit of the customer identified by the information from a database, and provides an authorization number or denial of the transaction. Because credit is to be provided by
20 the issuer of the card, such as a bank, the transaction is associated specifically with and is controlled by the issuer of the credit card.

 As another example, when a debit card of a customer is swiped, a transaction value is keyed in by
25 the retailer, and a PIN number is additionally keyed in by a user. The bank account of the user, the identity of which having been previously stored in association with the PIN number and card number, is accessed, and the transaction value is debited from the bank account. This
30 amount (less a transaction charge) is credited to the bank account of the retailer identified when the debit card reader dialed to an administration office which is in association with the bank. In this case as well, the transaction is associated specifically with and is
35 controlled by the issuer of the debit card.

It is common that some credit card issuers record loyalty points, for example a point for each dollar purchased on the credit card. These points are accumulated by the credit card issuer to the credit of the credit card user, and can be redeemed for merchandise typically advertised in a catalogue. In some cases, loyalty points are awarded by a vendor such as an airline, wherein the loyalty points can be used for airline travel with that airline. The vendor retains its own database of loyalty points accumulated against particular customers which have joined the loyalty point program.

In addition, identity cards rather than credit cards are sometimes used in the awarding of airline miles based on purchases from certain vendors. In this case as well, the card issuer retains a single database of airline points against customers.

In all such cases, the card issuer or the vendor (e.g. the airline) retains a simple database to keep track of the value of points accumulated or retained after redemption.

There is a single authority which has issued the card, and tie-ins of a single card with a limited number (often only one, and in some cases a large number) of merchants. For example, a card issuer may have a tie-in with several merchants to provide a discount on merchandise or services. In such a case, no loyalty points tied to a particular merchant are awarded to the customer for patronizing the merchant, but loyalty points can be awarded based on use of the card per se.

Further, the systems are not capable of dispensing or redeeming premiums or loyalty points "on-the-spot" for certain actions taken by customers, for example for patronizing certain merchants. Thus in this case as well, a single loyalty point database is associated with

the card issuer, but not with the merchants. A merchant has no way of knowing whether a particular customer repeatedly purchases from that merchant.

In other words, such systems provide and record
5 loyalty points related to use of a card, or to a single merchant, or to a single program (such as airline points), but do not provide loyalty points that can be traded between merchants or programs, and do not give incentive to patronize plural merchants as distinct from
10 incentive to use a single card. The airline points programs which are not associated with a particular credit card also require the use of a single card, and loyalty points cannot be traded between merchants.

The systems are also not capable of accumulating
15 prize values or loyalty points won on games played on game terminals, nor of dispensing prizes to players, e.g. loyalty points, premiums or plays on the games.

The systems are not capable of displaying
advertising directed to specific customers who have
20 identified themselves or have been identified at a terminal, nor for tracking what advertising has been displayed to particular customers, nor for controlling what advertising is shown to such customers.

Neither are the systems capable of allowing the
25 loyalty points won or otherwise acquire to be used as a medium of exchange between member merchants, e.g. exchanging points won playing a video game for premiums which can be used at various merchants

SUMMARY OF THE INVENTION

30 The present invention is an integrated on-line system which can accumulate and decrement exchange values associated with any customer from any merchant which has authorized access to the system or by an administrator or by plural authorized administrators. The awarded
35 exchange values for any transaction can be controlled by

an administrator or by authorized plural administrators, and can in addition be varied by location of the customer, by customer activity, by time and/or date, and by past history of either the activity itself or of the actions of the customer.

In addition, the administrator can vary the characteristics of a software program the customer, merchant, etc. is interacting with, so that loyalty points, advertisements, premiums, scores, game difficulty, and reward brackets, pricing by currency and/or loyalty point exchange, etc. can be controlled. The program can involve scoring of sporting events, scoring of school tests, operate applications such as email, etc. or it can be a video game such as one operating in a system of the type described in U.S. patent 5,083,271 issued January 21, 1992, or on a personal or public computer (public PC). A user interface to the program can be displayed on a video terminal which can be one of the games described in the aforementioned U.S. patent, or on a personal or public computer, a display type or video telephone, a network computer interacting and communicating via a private network, the internet, cable or the equivalent, a telephone line, etc. The advertisement can be shown in one or more frames which share the display with a game, or can occupy the entire display area. The advertisement can be directed to a particular player, or to a class of customer to which the player belongs, and/or can be scheduled based on time and/or date and/or location at which it is to be presented. The advertisement can be changed based on various criteria, such as the location of the display, how many times it has been run, how many times it has been directed to the customer or class of customer at a particular display or display location or at plural particular or classes of locations or based on

advertisements which have been shown to the customer in the past. Loyalty points (i.e. exchange values, which can include coupons, etc.) can be awarded based on an activity of the customer at least partly on the basis of his exposure to certain advertisements which may be displayed on the aforementioned displays.

Game programs can be changed and varied as to degree of difficulty and currency or exchange value price to participate, competition brackets can be set up and varied, thresholds for prizes can be established and varied, prize and premium values can be accumulated for various activities such as plays, purchases, loyalty, and/or timing, customers or players can be authorized or disqualified, advertising can be directed to certain customers or classes of customers, premiums can be accumulated and dispensed and prizes awarded across any kind of commercial or non-commercial activity with controllable interchangeability.

As an example, a customer can receive a coupon at a gasbar (or can play a newspaper game such as by reading an announcement in a newspaper) containing a question to be answered, and if answered correctly at a terminal used in the system described in this specification, a prize (e.g. a coupon for \$1000 off the price of a purchase, or the awarding of loyalty points which can be exchanged for merchandise or service at participating or at all merchants) can be awarded by the system, and the accounts of the customer, merchants and administrator incremented or decremented as required.

The present invention thus provides for the first time an efficient way of combining loyalty point and premiums of any (rather than restricted) merchants, allows interchange of loyalty points, and at the same time gathers activity information about the customers of those merchants as an effective commercial measurement

tool, and so that advertising may be targeted and efficiently delivered to those exact customers which can best benefit from the advertising.

By the use of the term merchants, included are
5 merchants not only of merchandise, but also of services including the services of play of various games and contests.

In this specification, the term customer and subscriber will be used synonymously, since a customer
10 which has been registered into the system becomes a subscriber, and it is the registered customer which can accumulate loyalty points.

In accordance with an embodiment of the present invention, a system for controlling a customer reward
15 system comprises a first database which stores customer identifications and accumulated loyalty points awarded to the customer. An administration terminal establishes loyalty point values associated with any of plural predetermined activities, and provides the values and
20 identities of associated activities for storage in a database. A reading terminal determines the identity of a customer at a location of the reading terminal. A first apparatus located in the region of the reading terminal detects an activity of the customer. Second
25 apparatus accesses the second database, looks up the activity of the customer, and deposits corresponding loyalty points in the first database in association with an identification of the customer.

In accordance with another embodiment, a method of
30 controlling a customer reward system comprises distributing identification elements to prospective customers each of which stores a unique customer identification. The presence of an identification element is subsequently detected at a terminal.
35 Identification can be effected by reading a magnetic

stripe on a card, reading a smart card, reading a bar code, voice analysis, eye iris detection, fingerprint or palmprint detection, etc. At least one of currency credits, loyalty point credits and coupon credits is
5 received and stored in a database record associated with a customer identification based on at least one of a currency deposit and an activity undertaken by a customer. The loyalty points and coupon credits had been predetermined by an administrator and are variable
10 depending on the activity undertaken by the customer and at least one of an identity of a merchant or machine which provides a product or a service, a total number or incremental number or skill level of persons which previously availed themselves of a product or service, a
15 time interval or the real time when the product or service is provided, a skill bracket or handicapped skill achieved by the customer of an activity, a handicap attributed to a machine which provides a product or service, an interval since an activity was undertaken by
20 the customer or by plural customers or by customers having a particular demographic profile, and a demographic profile of the customer.

In accordance with another embodiment, a method of controlling a customer reward system comprises:
25 distributing identification elements to prospective customers each of which store unique customer identifications, detecting the presence of an identification element at a terminal, receiving and storing loyalty point credits in a database record
30 associated with a customer identification based on at least one of a currency deposit and an activity undertaken by a customer, redeeming loyalty point credits by any of plural unrelated merchants at any of plural redemption terminals, reporting loyalty point credits and
35 redemptions undertaken by each of the plural merchants to

an administrator terminal via a communication network,
and settling credits and redemptions of loyalty points
from time to time as between the merchants and
administrator, whereby the loyalty points are used as a
5 medium of exchange between the merchants and
administrator via the network and the terminals.

In accordance with another embodiment, a method
for controlling a customer reward system comprises:
(a) establishing merchant, customer and administrator
10 loyalty point databases,
(b) depositing loyalty points in a designated
customer's database or in plural customer databases,
(c) redeeming loyalty points of a customer by a
merchant providing a goods or services, and decrementing
15 the database of the customer by a predetermined number of
loyalty points and incrementing the database of the
merchant by the predetermined number of loyalty points,
(d) decrementing a further predetermined number of
loyalty points from the database of the merchant and
20 incrementing the database of the administrator by the
further predetermined number of loyalty points.

In accordance with another embodiment, a method
for controlling a customer reward system comprises:
(a) establishing merchant, customer and administrator
25 loyalty point databases,
(b) depositing loyalty points in a designated
customer's database or in plural customer databases,
(c) redeeming loyalty points of a customer by a
merchant providing a goods or services, and decrementing
30 the database of the customer by a first predetermined
number of loyalty points and incrementing the database of
the administrator by the first predetermined number of
loyalty points, and
(d) decrementing a further predetermined number of
35 loyalty points from the database of the administrator

which is smaller than the first predetermined number of loyalty_points and incrementing the database of the merchant by the further predetermined number of loyalty points.

5 From time to time, in the above cases, values of loyalty points to monetary, merchandise or services values as between merchant and the administrator can be settled.

BRIEF DESCRIPTION OF THE DRAWINGS

10 A better understanding of the invention will be obtained by a consideration of the detailed description below, in conjunction with the following drawings, in which:

 Figure 1 is a block diagram of a preferred
15 embodiment of a system on which the present invention can be implemented, and

 Figure 2 is a flow chart of call initialization and loyalty point or coupon data interchange.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

20 U.S. patent 5,083,271 is incorporated herein by reference. This patent describes plural game arcades which are in communication with a central computer, or with one of plural regional computers which communicate with a central computer. The regional computers receive
25 game score data and compute tournament winners, downloading both winner information and advertising to local games at the game arcades.

 Turning to Figure 1, in place of the regional computers, regional servers 1A, 1B...1N, etc. are used.
30 Each regional server is located at a separate regional data center, although for convenience of illustration they are all shown in this Figure in data center 3.

 Each regional server has a memory containing a corresponding database 5A, 5B...5N coupled to it. In the
35 aforenoted patent, the corresponding memory stores not

only score data, but also values of money on deposit to be credited against the playing of a game, and handicaps of players and/or games. If an activity other than playing a game is to be rewarded, the user activity can
5 similarly be handicapped (for example, awarding of variable numbers of points for use of a particular long distance telephone supplier). In accordance with an embodiment of the invention, the databases 5A, 5B...5N also store specialized data relating to parameters used in a
10 game or activity, such as difficulty levels, points to be awarded for certain game activities, and other functions to be described in more detail below, as well as parameters and content relating to advertising, premiums, loyalty points, etc.

15 The data to be stored in databases 5A...5N is loaded by a decision support server 7, from data stored in a database 9 with which it communicates.

Validation and redemption terminals 11 are in communication with the regional servers 1A...1N. Each of
20 the terminals 11 is comprised of a card reader 13 and preferably a bar code reader 14, smart card reader, or the equivalent, coupled to a printer 15. The card reader is preferably also a card writer for writing the magnetic stripe on a card and/or for updating, debiting or
25 crediting one or more values stored on a smart card (a card which carries a processor or the equivalent and a memory). The term card reader is used in a general sense, since it can include a keypad or keyboard which can be used by the customer and/or merchant. The
30 customer can also or alternatively be identified by a voice identifier, an eye iris reader, a fingerprint or palmprint reader, a keyed-in identity code such as a PIN number detector, etc., all of which are generically referred to herein as a card reader. The printer is used
35 to print receipts and coupons, preferably including a bar

code or the equivalent. The card reader can be based on the type made by Verifone Corp. for swiping cards and dialing a credit or debit card administration office.

A terminal 11 should be located at the premises of each associated merchant authorized to use the system, and can be located at one or plural arcades 17 or other single or multi-terminal system. A system, which can be, but is not limited to arcade 17 which is similar to the system described in the aforementioned patent is in communication with a corresponding server, in a manner as will be described later. However, rather than each game 19 communicating directly with a regional server via its own interface, it is preferred that it communicate with a regional server through a master game 21, via shell software which uses a particular communication protocol which can encrypt data. This will be described in more detail later. A database 23 is also coupled to the master game 21.

A computer 25, referred to below as a public PC 25, can be in communication with an associated regional server 1A..1N. Preferably a card reader 13, bar code reader 14 and printer 15 are coupled to the computer, as well as a display 27, keyboard 28, game controls (e.g. joystick, mouse, trackball, fingerpad, pedals, etc.) a CD ROM player 29, and a DVD (digital versatile disk) player 31.

An administration office 41 contains a computer terminal 43 preferably operating in a Windows™ software environment, with a display 45. Rather than a Windows™ software environment, any type of operating system can be used, such as one which will operate under control of applets downloaded from the internet or any other network, MacIntosh, OS/2, etc. The terminal 43 includes a database and a processor for controlling parameters of software used in the system, and can communicate with the

decision support server 7 as will be described below.

In operation, games, advertising and parameters relating to loyalty points and/or coupons are downloaded under control of the decision support server 7 to
5 database 9, then are distributed to regional servers 1A...1N, then are downloaded to database 23. Alternatively the games, parameters and/or advertising are stored at the arcade 17 on local mass storage devices such as hard disk drives, digital versatile disks (DVDs) or CD ROMs
10 (or can be stored in a semiconductor or any other form of mass storage memory), and are enabled from data stored in the decision support software. The games, parameters and/or advertising can be provided via applet if desired. In the description below, and only in this example, the
15 games and advertising will be described as being stored on DVDs (in database 23). at the arcade. The database will be considered for this example to be a combination of the local mass storage and semiconductor memory, but it should be understood that the data can alternatively
20 be downloaded from database 5A to 5N coupled to the regional server, and stored for use as needed in the database 23.

It is preferred that the games themselves should be written within a shell, with software "hooks" between
25 the games and shell. The shell should be responsible for starting and stopping the game, altering its parameters, controlling the display of the game that is to be played, and communicating both with other games and with the regional server 1A...1N. It is preferred that each of the
30 games should communicate with the regional server only under control of the master game 21. The software operated by the master game 21 should in addition be designed to communicate with each of the games of the arcade, and with a designated regional server using a
35 communications manager program, in accordance with a

predetermined protocol.

Customer accounts are retained in the database 9, and are preferably comprised of the following fields:

1. Account data (customer name and PIN),
- 5 2. Balance of account (in currency), both current balance and pending balance (the latter being the expected balance after an ongoing transaction has been completed),
3. The identity and value of coupons and premiums
- 10 allocated to the customer,
4. The balance value of loyalty points associated with the customer, e.g. as incremented or decremented by a device such as by an input device at a merchant location (for example by inputting via a keypad connected
- 15 to the card reader 13 at a validation and redemption terminal 11) or by an administrator via terminal 43 at the administration location 41, or by operating an automatic terminal such as a coin telephone having a swipe card reader in administrative communication with
- 20 regional server 1A to 1N, a game machine, etc.,
5. Game ratings, such as skill level of the customer for variously played games, handicap values of the customer for variously played games, profiles (e.g. how much time is allocated to the player to complete various
- 25 games),
6. Viewing history of advertising (e.g. a record of the most recent time that the customer has viewed a particular advertisement),
7. Images displayed for this customer,
- 30 8. The identities of identification cards issued to the player,
9. Merchandise orders, e.g. the identity and loyalty point, premium or currency cost of merchandise that has been ordered, the date ordered, the date the order was
- 35 sent to the supplier, the date the order was shipped,

etc.,

10. The game play history, e.g. for each game played, the rank achieved, number of players in a game or tournament, etc.,

5 11. Data representing membership of the customer in competitions or teams,

12. Records of payments of fees made by the customer, and

13. Records of customer premiums and/or prizes awarded
10 (which can be used e.g. for tax computation).

The administrator characterizes each game and activity relating to merchant products and services with certain parameters, and downloads these parameters from terminal 43 to server 7. For example;, the administrator
15 establishes game formulae for each game, loyalty points (or none) for playing each game, for patronizing particular merchants, etc.

When a customer is issued an identity (ID) card, a PIN number is issued in a well known manner, and
20 information re its issuance is uploaded from a validation terminal 11 to the associated regional server 1A to 1N. A record in the database 9 relating to this customer is established by server 7. The record is seeded by the parameters provided by the administration terminal to the
25 server 7. For example, upon first initiation of the record, a number of loyalty points can be deposited to the customer, and recorded in the database in field 4.

The customer then pays currency to play say, 5 video games. The payment value is entered by swiping the
30 ID card in a local card reader in the arcade, and by then entering the PIN number of the customer and the number of games to be played, or a currency amount into a local keypad. This amount is stored (deposited) in database field 1 (see the above field list) of database 9, after
35 uploading from the arcade 17 via master game 21.

The customer then goes to the game and swipes his card in a card reader associated with the game. The request to initiate the game is sent to the game from the card reader, and value of the game play is sent to the decision support server 7. Server 7 addresses database 9, and selects the record of the customer from the card number read and provisionally decrements the amount on deposit, storing the resulting pending balance. If the game is not played (e.g. if there is a power outage), the pending balance is again incremented back to the previous balance after a predetermined amount of time. By using a central decision support server 7 and database 9 to store the customer accounts, the customer can be provided with service at any location which communicates with any regional server. A duplicate account is established and retained in the regional support server database 5A...5N, the records being mutually updated (synchronized) from time to time.

At the time of establishment of the record in database e.g. 5A, the server 7 would also store values in the remaining fields of the record. For example, it would store an advertisement value, to be described in more detail below, in field 6, indicating that no ads have been presented to the customer.

After the customer has swiped his card at a game, and thus in this way or in another way described above identifies himself, the local database provides a data message to the local system which enables the selected game. It also enables a DVD to run an advertisement to the game via its shell, which overlays the game in a window, or is presented prior to or with the initial, intermediate or final screens of the game. For example, the initial screen can be a "welcome to a new player" screen, with an advertisement relating to one or another of the associated merchants. The advertisements to be

run are pre-established at the administration terminal 43.

The fact of running a particular advertisement and of the customer being located at a particular game
5 (determined from his ID card) is then stored in the 10th field of the record. When the game has been completed, the score is uploaded to the regional server and the rank of the player is established and is stored in the 10th
10 field. The number of plays of the player of that game, and of other games, are also stored in the 10th field. On the basis of this, depending on the administrator, loyalty points, coupons or premiums can be provided to the customer.

For example, if the customer has achieved a
15 particular score, a predetermined number of loyalty points can be awarded, and added to those in the balance in the 4th field of the database record. A printer 15 can dispense a coupon to the customer e.g. for a discount on a food item at a fast food outlet, the serial number and
20 value of which is recorded in the 3rd field of the record. The printout can also record the score and the game that was played.

The identity of the advertisement which was run is recorded in the 6th field of the record.

25 The customer in achieving a particular amount of expertise can be handicapped by the software in the regional server 1A, and the handicap value recorded in the 5th field of the record, the rank achieved recorded in the 10th field, and all of this information can be printed
30 on the same ticket as the coupon, or another ticket.

Now assume that the player attends a different arcade, and wishes to play a game. He will swipe his ID card in the local card reader, press a button to command the start of or the identity of the game if necessary,
35 and his identity, a command to play a game and the cost

to play is uploaded to the associated regional server, say server 1B. Server 1B searches its database 5B for a record of the identified customer, and doesn't find it. It then sends an inquiry to the server 7, which sends an inquiry to each of the other regional servers. Server 1A responds, and provides an indication to server 1B that the customer record is stored in a database associated with server 1A.

Server 1A then sends the record of the customer to server 1B via server 7. Server 1B checks whether the second field has sufficient balance to pay for the game. On the indication that it does, a provisional decrement is done as described earlier, and server 1B sends a signal to the master game of the arcade to enable the game.

The server 1B also checks the ad view history and image last viewed, and enables the DVD at the arcade to run the next advertisement in the predetermined sequence of advertisements to the game to be played, via the game shell. The entire process is repeated as described earlier.

In the event the customer has used the local system before, and his identity data, etc. is stored in the local database, the above process can be carried out using the data stored in the local database, rather than using the data stored in the server.

The score can result in loyalty points or premiums being awarded to the player, which are stored in the account of the player.

Assume now that the customer wishes to redeem loyalty points or premiums. The customer can visit a validation and redemption terminal, which can be at the location of a merchant, a public PC, or at an arcade. The ID card of the customer is read, and an attendant types in a request on a local keyboard such as 28 to

obtain the number of loyalty points, or the identities of coupons or premiums held by the customer. This request is uploaded to the regional server, which reads the database e.g. 5A and accesses the record of the customer identified by the card (and PIN number, if desired). On verification by the regional server, the data stored in the fields of the information requested by the attendant are then downloaded to the local terminal, such as computer 25, and is displayed on display 27.

10 The customer can ask for redemption of the value of the coupon. For example, if the validation and redemption center is at a fast food outlet, and the coupon is for a discount on a hamburger from the fast food outlet, the merchant can sell the hamburger at the required discount, take the coupon from the customer, and
15 key in the coupon on a keypad or read a barcode or magnetic stripe, or the equivalent, carried by the coupon, to identify it and record it as having been redeemed. The local computer or the equivalent then
20 uploads this data to the regional server 1A, which records that the coupon has been rendered.

 While this transaction is going on, there could be a display adjacent the redemption equipment. The regional server, in learning of the presence of the
25 customer at that location from the ID card swipe, can then look up the advertisement viewing history from the 6th field of the customer's record in the database, and send a control signal to the computer or the equivalent at the redemption center, to enable a local DVD 31 to run
30 the next advertisement in a predetermined sequence to the display which is adjacent the customer. Loyalty points can be awarded to the identified customer based on viewing a particular advertisement, and stored in the database as described earlier.

35 In a similar manner, loyalty points can be

redeemed. The customer can attend a redemption center which can be a merchant, or a special catalog store. After swiping the ID card of the customer and keying in a request to display the number of loyalty points accrued
5 to the customer, the regional server e.g. 1A accesses the record of the customer using his ID and PIN number in database e.g. 5A, and downloads the information to a local display. Following redemption of a particular number of loyalty points for the merchandise or services
10 requested, the 4th field of the record of the customer is decremented by the value of the loyalty points redeemed.

It should be noted that the system is global, in that any merchant can have a redemption terminal. Upon redeeming loyalty points which have been accrued by the
15 customer by playing games, viewing advertisements, or using services of other merchants, etc., the redeeming merchant can be owed a certain value based on the redemption. This value or the equivalent in loyalty points, can be stored (credited) in a database 5A related
20 to the merchant. When a customer purchases goods from that merchant, a certain number of loyalty points can be awarded the customer, and the balance debited from the balance of the merchant. Administrator service fees in the form of loyalty points can be accrued to an account
25 of the administrator for each transaction. In this manner, loyalty points become a medium of exchange for the customer, the merchants and the administrator.

Loyalty points or a monetary amount can be decremented from an account of each merchant for each
30 play of its advertisement.

At the end of a predetermined period, for example quarterly, yearly, etc., the administrator and merchants can settle the accounts, e.g. collecting a prescribed monetary value for negative balances of merchant loyalty
35 point accounts, and paying a prescribed monetary value

for positive balances of merchant loyalty point accounts.

Loyalty points can also be redeemed by the customer for any merchandise or service at any merchant location or venue at which a service terminal is located, or for game play at an arcade.

Two types of data interchange are preferably used in the system: synchronous and asynchronous. In synchronous interchanges, the client initiates a connection to a server, sends a request, and await a reply, in a manner similar to credit card authorizations in retail stores. An example of this type of interchange in the present invention is the validation of a prize receipt. Asynchronous interchanges are used for database synchronization. They allow events that have been queued by clients to be sent to servers, and allow servers to add or update information in a client's database.

Four modes of communication between clients and servers are preferred to be used:

- Queries from clients to servers for specific information,
- Events being transmitted from clients to servers,
- Record and file system synchronization transmitted from servers to clients, and
- Interactive on-line traffic, allowing on-line services in which processing is done in real-time by the server, or through a proxy process on the server.

Because of the short duration and unpredictability of query calls, they are preferably implemented with a point-of-sale, packet type transaction type network, with dial-in connections from various client locations using a global toll-free number.

The remaining types of calls are more predictable in nature and duration, typically lasting one or more minutes, and preferably use full duplex stream-oriented

communications. This can be implemented using a dedicated or non-dedicated dial-up line between client and server, using TCP/IP ports (internet or intranet).

Thus each server can initiate two types of
5 connections to client servers: asynchronous dial-in to the transaction network at relatively low speeds (e.g. 2400 baud or higher) for short duration queries, or via a dial-in PPP connection (e.g. 28.8 kbaud or higher) or ISDN to perform sockets-based communication.

10 The data transmission protocol used is preferred to be bi-directional full-duplex asynchronous communication using X.25-based packet switching, but other communications technologies, e.g. ADSL, can be used, as they become widely available. Prior to
15 application to the network, the event data should be packetized, inserted into variable length telecommunication packets, compressed and encrypted using the encryption key of the location. Other fields in the telecommunication packet need not be compressed or
20 encrypted. The received packets should be decrypted, decompressed, and extracted from the telecommunication packets.

The transmissions are preferably initiated from the transmitting entity (dial-in) rather than being
25 polled. The calls can be normal (e.g. to pass data re start, game plays, alarms, meters, etc. to and from the client, stored in a queue at that location for subsequent transmission), urgent (e.g. such as customer information when a card is swiped), and receipt validation (e.g. to
30 verify calls used by validation terminals).

Terminals communicating within a single location can use 10baseT twisted pair wiring and 802.3 (Ethernet™) standard for data link management, or higher speed Ethernet or other technologies, as they become available.
35 The regional servers can accept connections from either

the point-of-sale transaction network or from a TCT/IP internet/intranet connection (using Berkeley sockets). The same application-layer protocols operate over each connection, with the possible exception of

5 synchronization, which can operate only over TCP/IP connections, if desired.

The four types of packets referred to above can have a number of subtypes, as follows:

Packet

10 **Type:** **Possible Subtypes:**

Control	Acknowledgment (ACK)	Negative Acknowledgment (NAK)
	Context Negotiation	Ping
	Ping Response	Open Query Link
15	Close Query Link	Open IP Link
	Close IP Link	Link Status Request
	Link Status Response	Suspend Processing
	Suspend Processing Response	Resume Processing
	Resume Processing Response	Synchronize
20	Synchronize Response	
Query	Test	Test Response
	Receipt Validation	Receipt Validation Response
	Subscriber Information	Subscriber Information Response
25	Account Withdrawal	Account Withdrawal Response
	Account Deposit	Account Deposit Response
	Subscriber Account Data Request	Subscriber Account Data Response
	Winning Redemption Play	Winning Redemption Play Response
30	Subscriber ID Request	Subscriber ID Response
	Credit/Debit Request	Credit/Debit Response
	Save State Request	Save State Response
	Restore State Request	Restore State Response
	New Subscriber Card Request	New Subscriber Card Response
35	Reserve Merchandise	Reserve Merchandise Response
	Purchase Merchandise	Purchase Merchandise Response
	Release Merchandise	Release Merchandise Response
	Subscriber Ranking Request	Subscriber Ranking Response
40	Event	
	Alarm	Tournament Play
	Redemption Play	Meter Readings
	Ad Statistics	Service Accesses
	Down Times	New Subscriber
	New Team	Issued Coupons
45	Loyalty Point Awards	
Synchron- ization	Inventory	Table Download
	File Initial Download	File Next Download
50	File Initial Upload	File Next Upload

When a call is connected over the point of sale network or either of the TCP/IP ports, the client and

server exchange context negotiation packets to configure the session communications as shown in Figure 2. When both parties have acknowledged the context negotiation, data packets can begin.

5 The client sends a context negotiation packet with the settings it wishes to use for the call (including the encryption and compression parameters). This packet also tells the server what type of call this is (e.g. events, queries, etc.). The server examines the context
10 negotiation packet and determines whether the values are acceptable. If so, it sends a context negotiation packet with the same settings to the client. The client acknowledges this packet to the server, and the call is considered to be established.

15 If the server cannot use the context provided by the client, it sends its own context negotiation packet back to the client with its preferred settings (e.g. a "lower" standard for compression or encryption). If the client agrees with these settings, it sends an
20 acknowledgement to the server, and the call is considered to be established.

 The contents of the context packet are sent uncompressed, but encrypted using the terminal's 16 byte license key and a TEA encryption algorithm. The terminal
25 cannot operate unless the license key entered at the machine matches the key entered through the server administrative application.

 If a device receives a context packet for an encryption method it can perform, it can NAK
30 (unacknowledge) the packet. The server should retransmit session key packets, working from best to worst encryption (retrying a number of times in case of communications faults) until the client returns an acknowledgement. If the client never acknowledges the
35 packet, the server should close the connection.

Likewise, if the server never acknowledges the packet from the client, the client can close the connection. The client is free to retry with a new socket on the same call.

5 When a connection is established over the asynchronous point of sale link, the client may immediately begin transmitting data packets to the server. Then a PPP connection is established, the client should create a socket connection to one of the TCP ports
10 listed above. Packets can then be sent over this socket connection. Multiple socket connections can be opened to allow parallel processing of synchronization, event and query traffic.

 Query exchanges preferably occur in lockstep over a
15 single connection. When a terminal issues a query, it waits on the same connection for a matching query response to arrive. The terminal then processes the query response, sends an acknowledgement, then closes the connection or continues with other query exchanges.

20 If a query initiates the download of table and/or file information to the client, the downloads should take place before the server sends the query response. When the query response is received at the client, it can assume that all downloads are complete.

25 Event transfer from clients to servers follows a lockstep acknowledgement cycle in which the client sends event packets and the server sends acknowledgement or nonacknowledgement packets in response. Events should remain in the client's event queue until an
30 acknowledgement has been received from the server. When all events have been sent and acknowledged, the client can close the connection.

 When a client makes a synchronization call, the client and server begin by exchanging inventory packets.
35 The client sends an inventory of all data currently

loaded, and the server sends an inventory of what the client should have (including table records and files).

The client should use the server's inventory to delete all records and files that are not present at the server. The server should use the client's inventory to build a set of table and file download packets to send new information to the client.

Once the inventories have been exchanged, the server should begin sending table and file download packets. The client should respond to these with either an acknowledgment or nonacknowledgement packet. When the server has sent all records, it should send a table download packet with 0 records to indicate the end of data. The client is free to close the connection at this point.

All packets should be framed with a consistent header and trailer, to allow the protocol processor in the receiving server or terminal to distinguish between different versions of requests. A preferred packet is as follows:

Offset:	Field Size:	Description:
0	Byte	Packet type - the following values are defined:
25		0x80 = Control Packets 0x81 = Query Packets 0x82 = Event Packets 0x83 = Synchronization Packets
30	1	Note that the high bit is used to distinguish these packets from earlier version packets. Subtype - the following values are defined: Control Packets:
35		0 = Acknowledgment 1 = Negative Acknowledgment 2 = Context Negotiation 3 = Ping 4 = Ping Response 5 = Open Query Link 6 = Close Query Link 7 = Open IP Link 8 = Close IP Link 9 = Request Link Status 10 = Link Status Response 11 = Suspend Processing 12 = Suspend Processing Response 13 = Resume Processing
45		

26

		14 = Resume Processing Response
		15 = Synchronize
		16 = Synchronize Response
5	Query Packets:	0 = Test
		1 = Test Response
		2 = Receipt Validation
10		3 = Receipt Validation Response
		4 = Customer Information
		5 = Customer Information Response
15		6 = Account Withdrawal
		7 = Account Withdrawal Response
		8 = Account Deposit
		9 = Account Deposit Response
20		10 = Customer Account Data Request
		11 = Customer Account Data Response
		12 = Winning Redemption
25		13 = Winning Redemption Response
		14 = Customer ID Request
		15 = Customer ID Response
		16 = Credit Debit Request
30		17 = Credit Debit Response
		18 = Save State Request
		19 = Save State Response
		20 = Restore State Request
		21 = Restore State Response
35		22 = New Customer Card Request
		23 = New Customer Card Response
		24 = Reserve Merchandise
		25 = Reserve Merchandise Response
40		26 = Purchase Merchandise
		27 = Purchase Merchandise Response
		28 = Release Merchandise
		29 = Release Merchandise Response
45		30 = Customer Ranking Request
		31 = Customer Ranking Response
	Event Packets:	0 = Alarm
50		1 = Tournament Play
		2 = Redemption Play
		3 = Meter Readings
		4 = Ad Statistics
		5 = Service Accesses
55		6 = Down Times
		7 = New Customer
		8 = New Team
		9 = Issued Coupons
		10 = Loyalty Point Awards
60	Synchronization Packets:	0 = Inventory
		1 = Table Download
		2 = File Initial Download
		3 = File Next Download
		4 = File Initial Upload

			5 = File Next Upload
2	2 bytes	Packet size (in bytes, including the type, subtype, size and CRC fields),	
		LSB first	
5	4	N bytes	Data (see individual packet description for format)
	4+N	2 bytes	CRC of packet.

10 Acknowledgment packets indicate the successful receipt of information. The total size of the framed packet will be 6 bytes.

	Field Size:	Description:
	1 byte	Packet Type = 0x80
15	1 byte	Packet Subtype = 0x00
	2 bytes	Packet Size = 6
	2 bytes	CRC

Negative Acknowledgment (NAK)

20 Negative Acknowledgment packets indicate that a transmission was unsuccessful or that the receiver encountered an error processing the data. The total size of the framed packet will be 7 bytes.

	Field Size:	Description:
	1 byte	Packet Type = 0x80
25	1 byte	Packet Subtype = 0x01
	2 bytes	Packet Size = 7
	1 byte	Failure Code
		0 Generic failure
		1 System error
30		2 Allocation failure
		3 Invalid Request
		4 Communications error
	2 bytes	CRC

Context Negotiation

35 Context Negotiation packets have the following data structure:

	Field Size:	Description:
	1 byte	Packet type = 0x80
	1 byte	Packet Subtype = 0x02
40	2 bytes	Packet Size = 40+
	4 bytes	Location ID (LSB first)
	6 bytes	Terminal ID
	[BEGIN ENCRYPTED AREA]	
	16 bytes	License Key
45	1 byte	Connection type
	1 byte	Encryption type
	1 byte	Transmission Sequencing

2 bytes Key Length (in bytes, LSB first)
N bytes Key Data
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
5 2 bytes CRC

 Location ID will be 0 in packets from the client.
It will be filled in with packets from the server with
the location ID configured for the terminal ID from the
10 client, or 0 if the terminal is not configured in any
location. Terminals that are not configured in any
location can still access the server for some limited
functions. However, if the licensing information is not
correct, the server will never send a Context Negotiation
15 packet to the client.

 The licence key is a value entered through the user
interface at the terminal, and entered by the operator
when configuring the machine in the administrative
application. It is used to encrypt the encrypted area of
20 the Context Negotiation packet. When the packet is
received, the receiving node decrypts the encrypted area
with its stored license key, then compares that key with
the decrypted version from the packet. If the two do not
match, the machine is not licensed correctly and the
25 Context Negotiation will not succeed until this is
corrected. At the terminal, a message indicating
incorrect license information should be displayed or
printed. At the server, the event will be logged for
reporting and/or alarming.

30 The connection type will be one of the packet type
codes (0x80 through 0x83) indicating the type of
connection being made. This will indicate to the server
which protocol processor to launch for the connection.
Note that if more than one type of activity needs to
35 occur on one connection, the client can send a Context
Negotiation packet during the call to renegotiate the
call type (and other parameters of the connection as

well.) When this occurs, all in-progress operations are completed then renegotiation occurs.

The Encryption type field will be one of the following values:

5	Value	Description
	0	<u>No encryption</u>
	1	<u>XOR of key and plain text</u>
	2	Earlier Protocol Version encryption
	3	TEA (see Appendix A for algorithm)
10	4	IDEA
	5	RSA

Transmission sequencing will be one of the values below:

	Value	Description
15	0	Lockstep (send packet, wait for Ack, send next packet)

The contents of the key data will depend on the encryption type as shown here:

20	Encryption Type:	Key Length and Key Data:
	0	data will be included
	1	<u>Key length will be 0, and no</u>
	2	Key length and key data can vary
25	3	<u>Key length and key data can vary</u>
	4	Key length is 16, key data can vary
	5	<u>Key length is 5, key data can vary</u>
		Key length and key data can vary

For connections between terminals within a single location, or between processes on a single terminal, the terminal ID and location ID are both set to 0. The contents of the packet will not be encrypted and should have the following values:

Encryption type = 0
 Transmission Sequencing = 0
 Key length = 0

This type of connection is only valid on LAN segments or between processes on a single machine.

The license key field will be filled by the terminal's license key. This allows the server process to enforce unique license keys and prevent services from

establishing their own connections to the server without their own valid license keys.

Ping

Ping packets are used to test communications to the server. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x03
2 bytes	Packet Size = 6
2 bytes	CRC

Upon receipt of a Ping packet, the server will immediately generate a Ping Response packet and send it to the client. This does not require any database or file system access, and can be used to test the basic connection between client and server processes.

Ping Response

Ping Response packets are sent in reply to a Ping packet. The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x04
2 bytes	Packet Size = 6
2 bytes	CRC

Open Query Link

A request that a link to the server be created that is capable of supporting query traffic (or increases the reference count of an existing link). The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x05
2 bytes	Packet Size = 6
2 bytes	CRC

This operation is intended for use between slave and master terminals within a location or between processes on a single terminal. On receipt of this

packet, the recipient should establish a connection to the server suitable for query traffic. This may mean forwarding a similar request to the next higher server in the hierarchy.

- 5 If there is already a link established, its reference count is incremented.

Close Query Link

- A request that a link to the server established by an Open Query Link request be closed (or the reference count of the link be decremented). The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x06
15 2 bytes	Packet Size = 6
2 bytes	CRC

Open IP Link

- A request that a link to the server be created that is capable of supporting IP traffic (or increases the reference count of an existing link.) The total size of the framed packet will be 6 bytes.

Field Size:	Description:
1 byte	Packet Type = 0x80
1 byte	Packet Subtype = 0x07
25 2 bytes	Packet Size = 6
2 bytes	CRC

- This operation is intended for use between slave and master terminals within a location or between processes on a single terminal. On receipt of this packet, the recipient should establish a connection to the server suitable for all types of traffic. This may mean forwarding a similar request to the next higher server in the hierarchy.

- If there is already a capable link established, its reference count is incremented.

Close IP Link

A request that a link to the server established by

an Open IP Link request be closed (or the reference count to the link be decremented). The total size of the framed packet will be 6 bytes.

	Field Size:	Description:
5	1 byte	Packet Type = 0x80
	1 byte	Packet Subtype = 0x08
	2 bytes	Packet Size = 6
	2 bytes	CRC

Request Link Status

10 A request for the current link status. The total size of the framed packet will be 6 bytes.

	Field Size:	Description:
	1 byte	Packet Type = 0x80
	1 byte	Packet Subtype = 0x09
15	2 bytes	Packet Size = 6
	2 bytes	CRC

When a server receives this request, it should respond with the status of the link to the main ADMIN server group. This may mean forwarding a similar request to the next higher server in the hierarchy.

Link Status

Returns to the current link status. Sent in response to a Request Link Status packet. The total size of the framed packet will be 6 bytes.

	Field Size:	Description:
25	1 byte	Packet Type = 0x80
	1 byte	Packet Subtype = 0x0A
	2 bytes	Packet Size = 7
	1 byte	Link Status
30		Low order nibble is current link status
	0x00	Link state unknown (indicates an error)
	0x01	Link is idle
	0x02	Connecting asynchronous
35	0x03	Connecting asynchronous, IP request pending
	0x04	Connecting IP
	0x05	Connected asynchronous
	0x06	Connected asynchronous, IP request pending
40	0x07	Connected IP
		High order nibble is modem state (if applicable)
	0x00	Modem idle (or no modem in link)
	0x10	Modem is dialing
	0x20	Modem is waiting for answer
45	0x30	Modem is connected
	0x40	Modem is authenticating
		High bit indicates processing is suspended
	0x80	Processing suspended

	1 byte	Query Status
		High bit is one if a query is in progress
		Bits 0-6 indicate the percentage complete
5	1 byte	Event Status
		High bit is one if an event exchange is in progress
		Bits 0-6 indicate the percentage complete
	1 byte	Synchronization Status
10		High bit is one if a database synchronization is in progress
		Bits 0-6 indicate the percentage complete
	2 bytes	CRC

The fields in the response packet relating to query, event and synchronization status are relevant only when the server process is running on a master terminal within a location. All other servers will return 0 for these three fields.

Suspend Processing

Requests that the communications process on the master terminal suspend any activity that could impact system performance. This prevents service degradation to ensure fair tournament play. The total size of the framed packet will be 10 bytes.

25	Field Size:	Description:
	1 byte	Packet Type = 0x80
	1 byte	Packet Subtype = 0x0B
	2 bytes	Packet Size = 10
	4 bytes	Time-out (seconds)
30	2 bytes	CRC

Suspend Processing Response

Sent by the communications process on a master terminal in response to a Suspend Processing request packet, indicating that the processing will be suspended as soon as possible. The client can use Get Link Status to determine when processing has been suspended. The total size of the framed packet will be 6 bytes.

	Field Size:	Description:
	1 byte	Packet Type = 0x80
40	1 byte	Packet Subtype = 0x0C
	2 bytes	Packet Size = 6
	2 bytes	CRC

Resume Processing

1 Informs the communications process on a master terminal that normal processing can be resumed. This should be performed after a time-critical operation has completed, and should balance each Suspend Processing packet. The total size of the framed packet will be 6 bytes.

	Field Size:	Description:
	1 byte	Packet Type = 0x80
10	1 byte	Packet Subtype = 0x0D
	2 bytes	Packet Size = 6
	2 bytes	CRC

Resume Processing Response

15 Sent by the communications process on a master terminal in response to a Resume Processing request packet, indicating that normal processing will be resumed. The total size of the framed packet will be 6 bytes.

	Field Size:	Description:
20	1 byte	Packet Type = 0x80
	1 byte	Packet Subtype = 0x0E
	2 bytes	Packet Size = 6
	2 bytes	CRC

Synchronize

25 Requests that the communications process on a master terminal initiate a synchronization with its server. Different levels of synchronization can be requested in the flags field. Note that the communications process should perform a full synchronization on startup and again every few hours automatically (depending on the dial in interval configured for the location). The total size of the framed packet will be 7 bytes.

	Field Size:	Description:
35	1 byte	Packet Type = 0x80
	1 byte	Packet Subtype = 0x0F
	2 bytes	Packet Size = 7
	1 byte	Flags
40		Defined bits include: 0x01 Scan file system and update

		W_CONTENT_CACHE table
	0x02	Synchronize the database with the server
5	0x04	Synchronize subscriber records in cache
	0xFF	Do full synchronization
	2 bytes	CRC

Synchronize Response

Sent by the communications process on the master terminal in response to a Synchronize packet, indicating that the process will begin the synchronization as soon as possible. The total size of the framed packet will be 6 bytes.

	Field Size:	Description:
15	1 byte	Packet Type = 0x80
	1 byte	Packet Subtype = 0x10
	2 bytes	Packet Size = 6
	2 bytes	CRC

Receipt Validation

Receipt validation packets are traditionally sent by validation terminals, but can be sent by any authorized terminal. Receipt IDs are printed on all receipts or coupons generated at terminals. The receipt ID is printed in two formats - a bar-code symbol using the Code 39 symbology, and a 15-digit numerical string, printed in 5 groups of 3 digits.

This packet is also used to redeem receipts and loyalty points the subscriber has on account. This is typically done by game terminals, following a Subscriber Account Information query to gather the current account information.

Receipt validation packets have the following data structure:

	Field Size:	Description:
35	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x02
	2 bytes	Packet Size = 30
	[BEGIN ENCRYPTED AREA]	
	6 bytes	Validating Terminal ID
40	1 byte	Receipt ID length (10 or 15)
	N bytes	Receipt ID

(Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

The length of the receipt data governs its format.
 5 The formats supported, and their lengths, are shown here:

Length: Format:

10	10 Code-39 Bar-code symbols, as read from the printed receipt
14	4-byte value representing the loyalty program ID
10	4-byte value representing the number of points being redeemed
	4-byte value representing the subscriber ID
	2-byte value representing the PIN
15	15 decimal digits, as printed on the receipt
15	16 10 Code-39 Bar-code symbols, as read from the printed coupon
	4-byte value representing the subscriber ID
	2-byte value representing the PIN
20	21 15 digit receipt ID of coupon being redeemed
	4-byte value representing the subscriber ID
	2-byte value representing the PIN

The receipt ID should appear in the packet in the same order as entered or scanned from the receipt. For numeric IDs, send the ASCII code for each digit. For
 25 bar-code format, send the ASCII codes for the bar-code symbols as defined in the Code 39 bar-code symbology.

Receipt Validation Response

When the server receives a Receipt Validation query, it will attempt to validate the receipt ID in the
 30 packet, and will return this response packet with the results.

Receipt validation response packets have the following data structure:

Field Size:	Description:
35 1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x03
2 bytes	Packet Size = 14 or 22
	[BEGIN ENCRYPTED AREA]
40 1 byte	Status indicator
	0 = Coupon valid-payment authorized
	1 = Coupon not found on server
	2 = System error
	3 = Coupon already redeemed
	4 = Insufficient loyalty points

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5 = Invalid loyalty program
6 = Subscriber not found
7 = Invalid PIN
8 = Subscriber account frozen
5 15 bytes      Authorization code (only present if
                        status=0)
(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]
2 bytes      CRC

```

10 The authorization code will be an ASCII string
consisting of digits only. It will always contain 15
digits.

Subscriber Information

Subscriber information queries are sent by clients
15 when a subscriber logs on to a terminal and that
subscriber's information is not in the local database
cache. This query will cause table and file downloads
between the query and the response.

Subscriber information request packets have the
20 following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x04
	2 bytes	Packet Size = 38
25	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID requesting the information
	1 byte	Card type used in the request
		1 = ADMIN card
		2 = Credit card
30		3 = Debit card
		4 = Name
		5 = Name and SSN
	16 bytes	Card data
	2 bytes	PIN
35	(Pad encrypted area to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
	2 bytes	CRC

If the card type is 1 (ADMIN Cards), the card data
40 should be filled with the 10-digit ID read from the NANI
card followed by 6 spaces.

If the card type is 2 or 3 (Credit or Debit card), the card data field should be the data read from the PAN

field on the card stripe (either track or track 2).

If the card type is 4 (Name), the card data field should be filled with 14 characters of the player's name followed by 2 spaces.

5 If the card type is 5 (Name and SSN), the card data field should be filled with 10 characters of the player's name followed by a 4-byte representation of the players SSN (treated as an integer, stored LSB first), followed by 2 spaces. This is the only case in which non-ASCII
10 data is stored in the card data field.

Subscriber Information Response

When the server received a request for subscriber information, it will collect the information about the subscriber (if found) into table and file download
15 packets, and transmit them to the client. When all downloads are complete, this response packet will be sent to the client. If there is an error or if the subscriber is not found in the server's database, this response will be transmitted right away.

20 Subscriber information response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x05
25 2 bytes	Packet Size = 14 or 22
	[BEGIN ENCRYPTED AREA]
6 bytes	Terminal ID requesting the information
1 byte	Status Indicator
	0 = Information found - subscriber
30	valid
	1 = Information not found
	2 = System error
	3 = Invalid PIN
4 bytes	Subscriber ID (only present if status = 0)
35 (Pad encrypted area to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]
2 bytes	CRC

If status is 0 or 3, this packet will be preceded
40 by a one or more table and/or file download packets

containing the subscriber information. When the response packet is received, all subscriber data will have been downloaded to the terminal. Responses with status codes 1 or 2 will be returned right away.

5 Account Withdrawal

This query is sent by clients when a subscriber requests a withdrawal of money currently on account.

Account withdrawal packets have the following data structure:

10	Field Size:	Description:
	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x06
	2 bytes	Packet Size = 22
	[BEGIN ENCRYPTED AREA]	
15	6 bytes	Terminal ID requesting the transaction
	4 bytes	Subscriber ID
	2 bytes	PIN number entered by subscriber
	4 bytes	Amount to be withdrawn (in US cents)
	(Pad encrypted area to even 8-byte boundary with zeros)	
20	[END ENCRYPTED AREA]	
	2 bytes	CRC

The server will enforce limits on the maximum and minimum amounts for which a withdrawal can be made.

Account Withdrawal Response

25 When an account withdrawal request is made, the server will attempt to perform the withdrawal, then will send this response packet to the client with the results.

Account withdrawal response packets have the following data structure:

30	Field Size:	Description:
	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x07
	2 bytes	Packet Size = 22 or 38
	[BEGIN ENCRYPTED AREA]	
35	6 bytes	Terminal ID performing the withdrawal
	4 bytes	Subscriber ID
	1 byte	Status indicator
		0 = Withdrawal authorized
		1 = Insufficient funds
40		2 = Subscriber not found on server
		3 = Invalid PIN
		4 = Account frozen
		5 = System error

6 = Invalid amount
 15 bytes Authorization ID for withdrawal (only
 present if status = 0)
 4 bytes New account balance, in US cents (only
 5 present if status = 0)
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

Account Deposit

10 This query is sent by the clients when a subscriber
 requests a deposit of money to his or her own ADMIN
 account.

Account deposit packets have the following data
 structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x08
2 bytes	Packet Size = 22
[BEGIN ENCRYPTED AREA]	
20 6 bytes	Terminal ID requesting the transaction
4 bytes	Subscriber ID
2 bytes	PIN number entered by subscriber
4 bytes	Amount to be deposited (in US cents)
[END ENCRYPTED AREA]	
25 2 bytes	CRC

Account Deposit Response

When an account deposit request is made, the server
 will attempt to perform the deposit, then will send this
 response packet to the client with the results.

30 Account deposit response packets have the following
 data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x09
35 2 bytes	Packet Size = 22 or 38
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID performing the withdrawal
4 bytes	Subscriber ID
1 byte	Status indicator
40	0 = Deposit accepted
	1 = Account limit exceeded
	2 = Subscriber not found on server
	3 = Invalid PIN
	4 = Account frozen
45	5 = System error

6 = Invalid amount

15 bytes Authorization ID for deposit (only present if status = 0)

4 bytes New account balance, in US cents (only present if status = 0)

5 (Pad encrypted area to even 8-byte boundary with zeros)

[END ENCRYPTED AREA]

2 bytes CRC

Subscriber Account Data Request

10 This query is sent by clients when a subscriber requests a full report on his or her current account status.

Subscriber account data request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0A
2 bytes	Packet Size = 22
[BEGIN ENCRYPTED AREA]	
20 6 bytes	Terminal ID
4 bytes	Subscriber ID
2 bytes	PIN
(Pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
25 2 bytes	CRC

Subscriber Account Data Response

When the server received an account data request, it collects the information about the subscriber's account and sends this response packet.

30 Subscriber account data response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0B
35 2 bytes	Packet Size = 22 or 38+
[BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID
4 bytes	Subscriber ID
1 byte	Status Indicator
40	0 = Success
	1 = Account Frozen
	2 = Subscriber not found
	3 = Invalid PIN
	4 = System error
45 4 bytes	Account balance (in US cents) (on success)
4 bytes	Amount withdrawn pending confirmation (in US

cents) (on success)
 2 bytes Number of outstanding orders (on success)
 6 bytes Order ID (on success)
 40 bytes Item name (on success)
 5 4 bytes Date and time order received (on success)
 4 bytes Date and time order sent to supplier (on
 success)
 4 bytes Expected ship date and time (on success)
 4 bytes Date and time order shipped (on success)
 10 4 bytes Date and time order canceled (on success)
 2 bytes Number of coupons (on success)
 4 bytes Coupon ID (on success)
 40 bytes Description (on success)
 6 bytes Receipt ID (on success)
 15 4 bytes Face value (on success)
 4 bytes Expiration date (on success)
 2 bytes Number of loyalty programs (on success)
 4 bytes Loyalty program ID (on success)
 40 bytes Loyalty program name (on success)
 20 20 bytes Loyalty point label (on success)
 4 bytes Number of points (on success)
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

25 **Winning Redemption Play**

When a redemption game has been played that awards a prize, and the prize has a limited number of units available (a non-zero value for the NUM_REMAINING field in the database), or that wins a prize that includes a pool amount, the terminal should immediately issue this query to update its local prize information.

This packet permits prize pools to be maintained across several locations, without the chance that more prizes that are available will be given out. It also allows the server to update the local pool value so players can see pool contributions from multiple locations.

Winning redemption play packets have the following data structure:

40 **Field Size: Description:**
 1 byte Packet Type = 0x81
 1 byte Packet Subtype = 0x0C
 2 bytes Packet Size = 38+
 [BEGIN ENCRYPTED AREA]
 45 4 bytes Subscriber ID playing the redemption game (LSB
 first)
 6 bytes Terminal ID on which the redemption game was played
 4 bytes Service ID on which redemption game was played (LSB

first)
 1 byte Player Station(8 bit flags, position 0 = station 1,
 etc.)
 1 byte Active Stations (8 bit flags, position 0 = station
 5 1, etc.)
 4 bytes Start Date and Time (UTC format, LSB first)
 4 bytes End Date and Time (UTC format, LSB first)
 1 byte Flags
 0x01 Equipment failed during game
 10 0x02 Score is invalid
 1 byte Number of statistics (n)
 [BEGIN REPEATING LIST]
 4 bytes Statistic ID (LSB first)
 4 bytes Statistic Value (LSB first)
 15 [END REPEATING LIST]
 1 byte Number of redemption games entered with the play
 (m)
 [BEGIN REPEATING LIST]
 4 bytes Redemption ID (LSB first)
 20 2 bytes Par level beaten (LSB first)
 4 bytes Par score beaten (LSB first)
 4 bytes Derived score achieved by subscriber (LSB
 first)
 4 bytes Prize ID awarded (LSB first)
 25 [END REPEATING LIST]
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

The subscriber ID may be 0 if the redemption game is
 30 unidentified.

Winning Redemption Play Response

When a winning redemption play query is received at
 the server, it will adjust the number of the awarded
 prizes remaining (if that number is limited), and/or it
 35 will calculate the pool amount to award to the player
 based on the current value of the collective prize pool.
 (If the par level has an associated pool amount). It
 will send this response packet back to the terminal,
 indicating the amount of the pool the player should be
 40 awarded and updating the pool value and number of prizes
 remaining as appropriate.

Winning redemption play response packets have the
 following data structure:

Field Size:	Description:
45 1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0D
2 bytes	Packet Size = 14+

```

[BEGIN ENCRYPTED AREA]
4 bytes      Current pool value (LSB first)
1 byte      Number of par levels being updated (n)
[BEGIN REPEATING LIST]
5           4 bytes      Redemption ID being updated (LSB
                        first)
           2 bytes      Par level being updated (LSB first)
           4 bytes      New pool value (after award) (LSB
                        first)
10          4 bytes      Pool amount to award (LSB first)
           4 bytes      Number of prizes remaining (LSB
                        first)
[END REPEATING LIST]
(Pad encrypted area to even 8-byte boundary with zeros)
15 [END ENCRYPTED AREA]
2 bytes      CRC

```

Subscriber ID Request

A subscriber ID request is used when a terminal needs to register a new player who does not have a NANI card. It generates a unique, unassigned subscriber ID that the player's card data can be associated with.

Subscriber ID request packets have no data. The packet header is sufficient to convey the request.

Field Size:	Description:
25 1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0E
2 bytes	Packet Size = 6
2 bytes	CRC

Subscriber ID Response

Upon completion, this request will have registered this ID as "allocated but unassigned". When the player registers, the terminal should send in a New Subscriber Event to assign the ID to the player.

Subscriber ID response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x0F
2 bytes	Packet Size = 14
40 [BEGIN ENCRYPTED AREA]	
1 byte	Status Code
	0 = Success
	1 = Failure
4 bytes	Subscriber ID (only present on success)

(Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

Credit/Debit Request

5 This request is issued by a terminal when a player presents a credit or debit card and requests that money be transferred on to the terminal for play, or into the player's account.

Credit/debit request packets have the following data
 10 structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x10
2 bytes	Packet Size = 46
15 [BEGIN ENCRYPTED AREA]	
6 bytes	Terminal ID requesting the transaction
4 bytes	Subscriber ID
2 bytes	PIN (LSB first)
1 byte	Card format (FC from track 1 stripe)
20 16 bytes	Card data (PAN code from track 1 stripe)
4 bytes	Expiration date (4 bytes of addition data from track 1 stripe)
2 bytes	Debit PIN (LSB first, zero for credit cards)
25 4 bytes	Amount to be withdrawn (in US cents, LSB first)
1 byte	Disposition
	0 = Place in subscriber account
	1 = Credit local terminal
30 (pad encrypted area to even 8-byte boundary with zeros)	
[END ENCRYPTED AREA]	
2 bytes	CRC

The card format, card data and expiration date fields should all appear exactly as read from the magnetic
 35 stripe on the card. The PIN should be entered by the player for debit cards only.

Credit/Debit Response

When a credit/debit request is received at the server, it will validate the player's subscriber
 40 information and eligibility to perform this type of request, then will attempt to authenticate the request through a credit processing system. Finally, it will

transmit this response packet to the terminal with the results.

Credit/Debit response packets have the following data structure:

5	Field Size:	Description:
	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x11
	2 bytes	Packet Size = 22 or 46
	[BEGIN ENCRYPTED AREA]	
10	6 bytes	Terminal ID performing the transaction
	4 bytes	Subscriber ID
	1 byte	Status indicator
		0 = Credit approved
		1 = Invalid card
15		2 = Credit limit exceeded
		3 = Account would exceed limit
		4 = Account frozen
		5 = Invalid amount
		6 = Invalid PIN
20		7 = Subscriber not found
		8 = System error
	1 byte	Disposition (only present if status = 0)
		0 = Placed in subscriber account
		1 = Credit local terminal
25	4 bytes	Amount (only present if status = 0)
	15 bytes	Authorization ID for the transaction (only present if status = 0)
	4 bytes	New account balance (only present if status = 0)
30	(Pad encrypted area to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
	2 bytes	CRC

The terminal ID and subscriber ID will be copied from the request packet, to verify that the response matches the request. The authorization ID will consist of 15 ASCII digits.

Save State Request

This request is used when a player wants to save the state of a game or other service (including the user interface shell) for later restoration (on this or another terminal).

Save State request packets have the following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x12
	2 bytes	Packet Size = 46
5	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID on which the state is being saved
	4 bytes	Subscriber ID
	2 bytes	PIN
10	4 bytes	Service ID
	1 byte	Slot Number
	20 bytes	Save State Name
	(Pad encrypted area to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
15	2 bytes	CRC

This packet is sent to the server to obtain a File ID. That file ID can then be used to upload the save state file to the server.

Save State Response

20 When the server receives a save state request packet, it allocates a file ID for the save state and returns the ID to the terminal in this response packet. It also provides the terminal with a pathname that the terminal should move the file to. This will ensure the integrity of the subscriber cache.

25 Save State response packets have the following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x81
30	1 byte	Packet Subtype = 0x13
	2 bytes	Packet Size = 22
	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID on which the state is being saved
35	4 bytes	Subscriber ID
	1 byte	Status Indicator
		0 = Ready for upload
		1 = Account storage allocation exceeded
40		2 = Subscriber not found on server
		3 = Invalid PIN
		4 = Service not found on server
		5 = Account frozen
		6 = System error
45	4 bytes	File ID (only present if status = 0)

60 bytes Local pathname (only present if status = 0)
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

5 The terminal ID and subscriber ID will be copied from
 the request packet, to verify that the response matches
 the request.

The terminal is then free to use the file upload
 protocol to send the file.

10 **Restore State Request**

This request is issued when a player wants to restore
 a state that was saved previously on this or another
 terminal. The server will return the File ID of the save
 state file, and if the download flag indicates a download
 15 is required, it will download the save state file between
 the request and the response.

Restore State request packets have the following data
 structure:

	Field Size:	Description:
20	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x14
	2 bytes	Packet Size = 30
	[BEGIN ENCRYPTED AREA] = 17	
	6 bytes	Terminal ID on which the state is being
25		restored
	4 bytes	Subscriber ID
	2 bytes	PIN
	4 bytes	Service ID
	1 byte	Slot number
30	1 byte	Download flag
		0 = Do not download the save state
		file
		1 = Download the file if it exists
	(Pad encrypted area to even 8-byte boundary with zeros)	
35	[END ENCRYPTED AREA]	
	2 bytes	CRC

Even if the file exists on the local machine, this
 request should be made before the player is allowed to
 load it, to assure the player is authenticated as the
 40 owner of the data, and also to verify the File ID of the
 save state file as stored in the SUBSCRIBER_SAVE_STATE

table.

Restore State Response

When the server received a restore state request, it will search for the saved state data, validate the integrity of the file, and return the file ID to the client. If the client requested a download of the file, the file will be transmitted before the response is returned.

Restore State response packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x15
2 bytes	Packet Size = 14
[BEGIN ENCRYPTED AREA]	
1 byte	Status Indicator
	0 = Permission to use save state granted
	1 = Requested save state not found on server
	2 = Subscriber not found on server
	3 = Invalid PIN
	4 = Service not found on server
	5 = Account frozen
	6 = System error
4 bytes	File ID (only present if status = 0)
	(Pad encrypted area to even 8-byte boundary with zeros)
[END ENCRYPTED AREA]	
2 bytes	CRC

New Subscriber Card Request

This request is used to associate a new card number with an existing subscriber. This allows players to use multiple cards (including their name or name/SSN combination) to identify themselves to the network.

This request will succeed only if the new card ID is unique throughout the entire ADMIN network.

New Subscriber Card request packets have the following data structure:

Field Size:	Description:
1 byte	Packet Type = 0x81
1 byte	Packet Subtype = 0x16
2 bytes	Packet Size = 38
[BEGIN ENCRYPTED AREA]	

50

6 bytes Terminal ID
 4 bytes Subscriber ID
 2 bytes PIN
 1 byte Card Type
 5 1 = NANI card
 2 = Credit card
 3 = Debit card
 4 = Name
 5 = Name and SSN
 10 16 bytes Card Data
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

New Subscriber Card Response

15 When a new subscriber card request is received by the
 server, it will validate the uniqueness of the card data
 and create a new card record for the subscriber,
 returning the result in this packet.

20 New Subscriber Card response packets have the
 following data structure:

Field Size: Description:
 1 byte Packet Type = 0x81
 1 byte Packet Subtype = 0x17
 2 bytes Packet Size = 22
 25 [BEGIN ENCRYPTED AREA]
 6 bytes Terminal ID
 4 bytes Subscriber ID
 1 byte Status indicator
 0 = Card added successfully
 30 1 = Card is registered to another
 subscriber
 2 = Subscriber not found on server
 3 = Invalid PIN
 4 = Card already registered to this
 35 subscriber
 5 = Account frozen
 6 = System error
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 40 2 bytes CRC

Reserve Merchandise

Reserve merchandise request packets are used to
 reserve an item of merchandise. The requester can
 specify attribute values for the item, which the server
 45 will try to match.

Reserve merchandise request packets have the following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x81
5	1 byte	Packet Subtype = 0x18
	2 bytes	Packet Size = 38+
	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID
	4 bytes	Subscriber ID
10	2 bytes	PIN
	4 bytes	Item ID to reserve
	4 bytes	Quantity to reserve
	4 bytes	Price Offered
	1 byte	Number of attributes
15	1 byte	Attribute ID
	2 bytes	Attribute data size
	Variable	Attribute data
	(Pad encrypted area to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
20	2 bytes	CRC

Reserve Merchandise Response

Reserve Merchandise response packets indicate to the requester whether the reservation was successful, and if so, what the actual attribute values of the reserved item is. If the requested quantity could not be met, the largest quantity that could be reserved is returned.

Reserve Merchandise response packets have the following data structure:

	Field Size:	Description:
30	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x19
	2 bytes	Packet Size = 38+
	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID
35	4 bytes	Subscriber ID
	4 bytes	Item ID being reserved
	1 byte	Status code
	0	Reservation successful
	1	No items remain in inventory
40	2	Invalid request
	3	System error
	4 bytes	Quantity reserved (on success)
	4 bytes	Price of reserved items (on success)
	6 bytes	Reservation ID (on success)
45	1 byte	Number of attributes
	1 byte	Attribute ID

2 bytes Attribute data size
 Variable Attribute data
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 5 2 bytes CRC

Purchase Merchandise

Purchase merchandise request packets are used to purchase merchandise that was previously reserved with a Reserve merchandise query. The requester can specify
 10 attribute values for the item, which the server will try to match.

Purchase merchandise request packets have the following data structure:

	Field Size:	Description:
15	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x1A
	2 bytes	Packet Size = 30+
		[BEGIN ENCRYPTED AREA]
	6 bytes	Terminal ID
20	4 bytes	Subscriber ID
	2 bytes	PIN
	6 bytes	Reservation ID (on success)
	4 bytes	Purchase price
		(Pad encrypted area to even 8-byte boundary with zeros)
25		[END ENCRYPTED AREA]
	2 bytes	CRC

Purchase Merchandise Response

Purchase Merchandise response packets verify to the requester that the purchase has been processed by the
 30 server and that the money should be deducted from the player's funds (either account fees or cash).

Purchase merchandise response packets have the following data structure:

	Field Size:	Description:
35	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x1B
	2 bytes	Packet Size = 22 or 30
		[BEGIN ENCRYPTED AREA]
	6 bytes	Terminal ID
40	4 bytes	Subscriber ID
	1 byte	Status code
		0 Purchase successful
		1 No items remain in inventory

2 Invalid request
 3 System error
 6 bytes Order ID (on success)
 (Pad encrypted area to even 8-byte boundary with zeros)
 5 [END ENCRYPTED AREA]
 2 bytes CRC

Release Merchandise

Release merchandise request packets are used to
 10 release merchandise that was previously reserved with a
 Reserve merchandise query. The requester can specify
 attribute values for the item, which the server will try
 to match.

Purchase merchandise request packets have the
 15 following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x1C
	2 bytes	Packet Size = 30
20	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID
	4 bytes	Subscriber ID
	2 bytes	PIN
	6 bytes	Reservation ID (on success)
25	(Pad encrypted area to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
	2 bytes	CRC

Release Merchandise Response

Release merchandise response packets verify to the
 30 requester that reserved merchandise has been released.

Purchase merchandise response packets have the
 following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x81
35	1 byte	Packet Subtype = 0x1D
	2 bytes	Packet Size = 30
	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID
	4 bytes	Subscriber ID
40	6 bytes	Reservation ID
	1 byte	Status code
	0	Release successful
	1	Invalid request
	2	System error

(Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

Subscriber Ranking Request

5 A request for a subscriber's current ranking in one or more tournament brackets. This can be used to request ranking in brackets that have ended and are beyond their posting period.

Subscriber ranking request packets have the following
 10 data structure:

Field Size: Description:

1 byte Packet Type = 0x81
 1 byte Packet Subtype = 0x1D
 2 bytes Packet Size = 30+
 15 [BEGIN ENCRYPTED AREA]
 6 bytes Terminal ID
 4 bytes Subscriber ID
 2 bytes PIN
 1 byte Number of tournament brackets
 20 4 bytes Tournament ID
 1 byte Bracket ID
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

25 Subscriber Ranking Response

The response to the subscriber ranking request packet. This packet contains the subscriber's current position and ranking score in each of the requested tournament brackets that the subscriber has participated
 30 in. If the subscriber has not yet played in one of the requested brackets, or the bracket is not found on the server, it will not be included in the list.

Subscriber ranking response packets have the following data structure:

35 Field Size: Description:

1 byte Packet Type = 0x81
 1 byte Packet Subtype = 0x1E
 2 bytes Packet Size = 22
 [BEGIN ENCRYPTED AREA]
 40 1 byte Status
 0 = Query succeeded
 1 = Account frozen

55

2 = Subscriber not found
 3 = Invalid PIN
 4 = System error
 4 bytes Subscriber ID
 5 1 byte Number of tournament brackets
 4 bytes Tournament ID
 1 byte Bracket ID
 2 bytes Rank
 4 bytes Score
 10 4 bytes Score Date and Time
 (Pad encrypted area to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 2 bytes CRC

Event Packets

15 Event packets are transmitted on sockets connected to
 the Event services IP port, or over an asynchronous POS
 network connection. In either case, they use a transmit-
 ack lockstep exchange. The client transmits an event
 packet, the server responds with an Ack. If the server
 20 does not respond within 1 second, the client resends the
 event packet up to 5 times, then fails and moves on to
 its next event. If the server sends a Nak, the packet
 should be resent right away. These timeouts may need to
 be tuned for Internet-based transmission.

25 The entire data portion of the event packet is
 encrypted using the encryption parameters negotiated for
 the connection.

Alarm

Alarm event packets have the following data
 30 structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x82
	1 byte	Packet Subtype = 0x00
	2 bytes	Packet Size
35		[BEGIN ENCRYPTED AREA]
	6 bytes	Terminal ID of the machine reporting the alarm
	2 bytes	Alarm code being reported (LSB first). Currently defined values are shown below.
40	4 bytes	Time the alarm was reported (UTC format, LSB first)
	1 byte	Flag indicating whether the alarm was handled by the terminal

(1 if the terminal handled the alarm with a local handler)
 2 bytes Alarm data size (LSB first)
 Variable Alarm data. The content of this field depends on the alarm type. The formats for each defined alarm code are shown below.
 (Pad data portion of packet to even 8-byte boundary with zeros)
 [END ENCRYPTED AREA]
 10 2 bytes CRC

Alarm

	Code:	Meaning:	Data:
	1	Hard reset (power up)	None
	2	Soft reset	None
15	3	Hardware failure	ASCII diagnostic message (optional)
	4	Firmware failure	ASCII diagnostic message (optional)
	5	Bill acceptor full	None
20	6	Coin jam	None
	7	Bill jam	None
	8	Network disabled	None
	12	Game time-out	None
	13	Hard drive full	None
25	18	Printer error	None
	19	Printer paper low	None
	22	Cable disconnected	ASCII diagnostic message (optional)
30	23	Security alarm	Binary position of switch positions (use 32 bits)
	24	Enabled by technician	Technician ID enabling terminal
35	25	Disabled by technician	Technician ID disabling terminal
	26	Immediate call requested	None
	27	Queue entry aged	None
	29	Serial number changed	None

Alarm events are queued to the server as soon as they are detected. Alarms of the following types are considered critical and should be transmitted right away:

	Hardware failure	Firmware failure
	Bill acceptor full	Coin jam
45	Bill jam	Printer error
	Cable disconnected	Security alarm
	Immediate call request	

Tournament Play

Tournament play event packets have the following data

structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x82
	1 byte	Packet Subtype = 0x01
5	2 bytes	Packet Size
	[BEGIN ENCRYPTED AREA]	
	4 bytes	Subscriber ID playing the tournament game (LSB first)
10	6 bytes	Terminal ID on which the tournament game was played
	4 bytes	Service ID on which tournament game was played (LSB first)
	1 byte	Player Station (8 bit flags, position 0 = station 1, etc.)
15	1 byte	Active Station (8 bit flags, position 0 = station 1, etc.)
	4 bytes	Start Date and Time (UTC format, LSB first)
	4 bytes	End Date and Time (UTC format, LSB first)
	1 byte	Flags
20		0x01 Equipment failed during game
		0x02 Score is invalid
		0x04 Player should be disqualified
25	1 byte	Number of statistics (n)
	4 bytes	Statistic ID (LSB first)
	4 bytes	Statistic Value (LSB first)
	...	
30	1 byte	Number of tournament games entered with the play (m)
	4 bytes	Tournament ID entered (LSB first)
	1 byte	Bracket ID entered
	4 bytes	Derived score achieved by subscriber (LSB first)
35	...	
	(Pad data portion of packet to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
	2 bytes	CRC

40 Redemption Play

Redemption play event packets have the following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x82
45	1 byte	Packet Subtype = 0x02
	2 bytes	Packet Size
	[BEGIN ENCRYPTED AREA]	
	4 bytes	Subscriber ID playing redemption game (LSB first)

	6 bytes	Terminal ID on which redemption game was played
	4 bytes	Service ID on which redemption game was played (LSB first)
5	1 byte	Player Station (8 bit flags, position 0 = station 1, etc.)
	1 byte	Active Stations (8 bit flags, position 0 = station 1, etc.)
	4 bytes	Start Date and Time (UTC format, LSB first)
10	4 bytes	End Date and Time (UTC format, LSB first)
	1 byte	Flags
		0x01 Equipment failed during game
		0x02 Score is invalid
15	1 byte	Number of statistics (n)
	4 bytes	Statistic ID (LSB first)
	4 bytes	Statistic Value (LSB first)
	...	
	1 byte	Number of redemption games entered with the play (m)
20		
	4 bytes	Redemption ID (LSB first)
	2 bytes	Par level beaten (LSB first)
	4 bytes	Par score beaten
	4 bytes	Derived score achieved by subscriber (LSB first)
25		
	4 bytes	Pool amount awarded (LSB first)
	...	
		(Pad data portion of packet to even 8-byte boundary with zeros)
30		[END ENCRYPTED AREA]
	2 bytes	CRC

Meter Readings

Meter readings event packets have the following data structure:

35	Field Size:	Description:
	1 byte	Packet Type = 0x82
	1 byte	Packet Subtype = 0x03
	2 bytes	Packet Size
		[BEGIN ENCRYPTED AREA]
40	6 bytes	Terminal ID on which the meters were collected
	4 bytes	The date and time meters were collected (in UTC format, LSB first)
	2 bytes	Number of terminal meters included (LSB first) (n)
45		
	4 bytes	Terminal Meter ID (LSB first)
	4 bytes	Terminal Meter Value (LSB first)
	...	
	2 bytes	Number of service meters (LSB first) (m)
50	4 bytes	Service ID of the meter (LSB first)

4 bytes Meter ID of the meter (LSB first)

4 bytes Meter Value of the meter (LSB first)

...

5 (Pad data portion of packet to even 8-byte boundary with zeros)

 [END ENCRYPTED AREA]

2 bytes CRC

Terminal manufacturers should support as many of the following pre-defined terminal meter IDs as possible, as well as any additional meters available:

	Meter ID:	Meaning:
	1	Left slot coins in
	2	Right slot coins in
15	3	3 rd slot coins in
	4	4 th slot coins in
	5	Paid credits
	6	Total collection (in cents)
	7	Service credits
20	8	Total plays
	9	Total uptime (minutes)
	10	Number of hard resets
	11	Number of soft resets

Terminal meters should never reset to zero. They should accumulate in 32-bit fields over the lifetime of the terminal. Relative values will be computed between two consecutive readings at the database.

Ad Statistics

Ad statistics event packets have the following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x82
	1 byte	Packet Subtype = 0x04
	2 bytes	Packet Size
35	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID on which the statistics were collected
	4 bytes	The date and time statistics were collected (in UTC format, LSB first)
40	2 bytes	Number of unidentified ads (n)
	4 bytes	Target ID (LSB first)
	4 bytes	Number of plays
	...	
45	2 bytes	Number of identified ad exposures (LSB first) (m)
	4 bytes	Target ID (LSB first)

60

4 bytes Subscriber ID (LSB first)

4 bytes Date and time the ad was played (UTC
format, LSB first)

5 ...
(Pad data portion of packet to even 8-byte boundary with
zeros)
[END ENCRYPTED AREA]
2 bytes CRC

10 Ad statistics are accumulated on each terminal and
queued at midnight each night (or whenever the terminal
detects the current day has changed, in case it is
powered off at midnight). The packet reports all ad
plays for the day. As soon as this packet is queued, the
15 ad play records can be deleted from the terminal, and a
new day's record keeping begun. The queued entry must
not be deleted until successfully received at the server
and acknowledged.

Service Accesses

20 Service accesses event packets have the following
data structure:

Field Size: Description:

1 byte Packet Type = 0x82

1 byte Packet Subtype = 0x05

25 2 bytes Packet Size
[BEGIN ENCRYPTED AREA]
6 bytes Terminal ID on which the statistics were
collected

4 bytes The date and time statistics were collected
(in UTC format, LSB first)

30 2 bytes Number of service accesses being reported
(LSB first) (n)

4 bytes Service ID being accessed (LSB first)

1 byte Profile used

35 4 bytes Start date and time of access (UTC format,
LSB first)

4 bytes End date and time of access (UTC format,
LSB first)

4 bytes Subscriber ID (LSB first)

40 4 bytes Cash funds used (LSB first)

4 bytes Account funds used (LSB first)

...
(Pad data portion of packet to even 8-byte boundary with
zeros)

45 [END ENCRYPTED AREA]

2 bytes CRC

This packet tracks all accesses to any service on the terminal. Each time a player plays a game or engages in a session in any other service, the data should be stored. This packet should be generated each evening at midnight for the day's service accesses (or whenever the terminal detects the current day has changed).

Down Time

Down time event packets have the following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x82
	1 byte	Packet Subtype = 0x06
15	2 bytes	Packet Size
	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID on which the down times are being reported
20	4 bytes	The date and time down times were reported (in UTC format, LSB first)
	2 bytes	Number of down times being reported (LSB first) (n)
	4 bytes	Technician ID responsible for the down time (LSB first)
25	4 bytes	Start date and time of down time (UTC format, LSB first)
	4 bytes	End date and time of down time (UTC format, LSB first)
	...	
30	(Pad data portion of packet to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
	2 bytes	CRC

This packet tracks all down times experienced by a terminal. Games should periodically update some non-volatile timestamp while they are running, and then test this value on powerup to see how long the power outage was, and report this as down time. When a technician administratively takes the game down through a service menu, this is also logged in this packet. This packet should be generated each evening at midnight for the day's down times (or whenever the terminal detects the

current day has changed).

New Subscriber

New subscriber event packets have the following data structure:

5	Field Size:	Description:
	1 byte	Packet Type = 0x82
	1 byte	Packet Subtype = 0x07
	2 bytes	Packet Size
	[BEGIN ENCRYPTED AREA]	
10	6 bytes	Terminal ID on which the subscriber registered
	4 bytes	Subscriber ID being registered (LSB first)
	26 bytes	Alias entered by the subscriber
	26 bytes	Street address entered by the subscriber
15	10 bytes	Postal code entered by the subscriber
	10 bytes	Phone number entered by the subscriber
	20 bytes	First name entered by subscriber
	20 bytes	Last name entered by subscriber
	2 bytes	Middle initial entered by subscriber
20	1 byte	Birth day entered by subscriber
	1 byte	Birth month entered by subscriber
	2 bytes	Birth year entered by subscriber (LSB first)
	1 byte	Gender entered by subscriber (0 = male, 1 = female)
25	9 bytes	SSN entered by subscriber
	2 bytes	PIN entered by the subscriber
	1 byte	Number of cards to register
	1 byte	Card Type
		1 = ADMIN card
30		2 = Credit card
		3 = Debit card
		4 = Name
		5 = Name and SSN
	16 bytes	Card Data
35	...	
	(Pad data portion of packet to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
	2 bytes	CRC

40

New subscriber events are queued when players register a new card. They are queued at the time the data is entered, but do not need to be sent right away. However, if the player subsequently plays any games that generate queue entries, the terminal must ensure that this event is transmitted to the server before any game

45

plays for that player. This is to ensure that the server has established an account for the player before attaching a game play to it.

Any of the registered cards that are included in the packet that already exist on the server or fail for some other reason will be skipped, but the subscriber will be created regardless. A card of type "NANI Card" with a card ID equal to the value of the subscriber ID will be created automatically.

10 **New Team**

New team event packets have the following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x82
15	1 byte	Packet Subtype = 0x08
	2 bytes	Packet Size
	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID on which the subscriber registered
20	4 bytes	Subscriber ID of team being registered (LSB first)
	26 bytes	Alias entered by the team
	2 bytes	PIN entered for team
	1 byte	Number of members
25	4 bytes	Subscriber ID
	1 byte	Flags
	...	
	(Pad data portion of packet to even 8-byte boundary with zeros)	
30	[END ENCRYPTED AREA]	
	2 bytes	CRC

New team events are queued when teams register. They are queued at the time the data is entered, but do not need to be sent right away. However, if the team subsequently plays any games that generate queue entries, the terminal must ensure that this event is transmitted to the server before any game plays for that team. This is to ensure that the server has established an account for the team before attaching a game play to it.

40 **Issued Coupons**

Issued coupons event packets have the following data

64

structure:

Field Size: Description:

	1 byte	Packet Type = 0x82
	1 byte	Packet Subtype = 0x09
5	2 bytes	Packet Size
	[BEGIN ENCRYPTED AREA]	
	6 bytes	Terminal ID on which the down times are being reported
10	2 bytes	Number of coupons being reported (LSB first) (n)
	4 bytes	Coupon ID issued (LSB first)
	4 bytes	Subscriber ID coupon was issued to (LSB first)
15	4 bytes	Date and time coupon was issued (UTC format, LSB first)
	6 bytes	Receipt ID
	1 byte	Flags
	...	
20	(Pad data portion of packet to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
	2 bytes	CRC

This packet tracks all coupons issued by a terminal. This packet should be generated each night at midnight for the day's coupons (or whenever the terminal detects the current day has changed).

Loyalty Point Awards

Loyalty point award event packets have the following data structure:

30	Field Size: Description:	
	1 byte	Packet Type = 0x82
	1 byte	Packet Subtype = 0x0A
	2 bytes	Packet Size
	[BEGIN ENCRYPTED AREA]	
35	6 bytes	Terminal ID on which the awards are being reported
	2 bytes	Number of awards being reported (LSB first) (n)
40	4 bytes	Subscriber ID receiving the award (LSB first)
	4 bytes	Loyalty Program ID (LSB first)
	2 bytes	Number of points awarded (LSB first)
	4 bytes	Date and time the award was made (UTC format, LSB first)
45	...	
	(Pad data portion of packet to even 8-byte boundary with zeros)	

[END ENCRYPTED AREA]

2 bytes CRC

5 This packet tracks all loyalty points awarded by a terminal. This packet should be generated each evening at midnight for the day's awards (or whenever the terminal detects the current day has changed).

Synchronization Packets

Inventory

Inventory packets have the following data structure:

10 **Field Size: Description:**

1 byte Packet Type = 0x83

1 byte Packet Subtype = 0x00

2 bytes Packet Size

[BEGIN ENCRYPTED AREA]

15 6 bytes Terminal ID issuing the request (or 0 for server inventories)

2 bytes System software version (LSB first)

2 bytes Number of records (LSB first) (n)

1 byte Table ID the record belongs to

20 4 bytes Record ID

...

2 bytes Number of files (LSB first) (m)

4 bytes File ID (LSB first)

...

25 2 bytes Number of content objects (LSB first) (m)

4 bytes Content ID (LSB first)

...

(Pad encrypted area to even multiple of 8 bytes)

[END ENCRYPTED AREA]

30 2 bytes CRC

Data is guaranteed to be in order of ascending table ID, but not necessarily in order of ascending record ID within each table ID.

Table Download

35 Downloaded table records are inserted directly into the database, using the record ID as a key. Any existing records with the same record ID are overwritten. A table download packet with 0 records is used to indicate no more data.

40 Table download packets have the following data structure:

Field Size: Description:

1 byte Packet Type = 0x83
 1 byte Packet Subtype = 0x01
 2 bytes Packet Size
 5 [BEGIN ENCRYPTED AREA]
 1 byte Table ID being downloaded
 2 bytes Number of records (LSB first) (n)
 6 bytes Record ID of a record in the table (LSB first)
 10 2 bytes Record data size (in bytes, LSB first)
 Variable Record data
 ...
 (Pad encrypted area to even multiple of 8 bytes)
 [END ENCRYPTED AREA]
 15 2 bytes CRC

File Initial Download

File Initial Download packets have the following data structure:

Field Size: Description:

20 1 byte Packet Type = 0x83
 1 byte Packet Subtype = 0x02
 2 bytes Packet Size
 [BEGIN ENCRYPTED AREA]
 4 bytes File ID being downloaded (LBS first)
 25 4 bytes Total file size (LSB first)
 4 bytes File flags (compression info, permissions, etc. - TBD)
 2 bytes Number of segments (LSB first)
 1 byte Path length
 30 Variable pathname on local machine
 (Pad encrypted area to even multiple of 8-bytes)
 [END ENCRYPTED AREA]
 2 bytes CRC

File Next Download

35 File Next Download packets have the following data structure:

Field Size: Description:

1 byte Packet Type = 0x83
 1 byte Packet Subtype = 0x03
 40 2 bytes Packet Size
 [BEGIN ENCRYPTED AREA]
 4 bytes File ID being downloaded (LBS first)
 2 bytes Segment number (LSB first)
 2 bytes Segment data size (LSB first)
 45 Variable Segment data
 (Pad encrypted area to even multiple of 8-bytes)
 [END ENCRYPTED AREA]
 2 bytes CRC

File Initial Upload

File Initial Upload packets have the following data structure:

5	Field Size:	Description:
	1 byte	Packet Type = 0x83
	1 byte	Packet Subtype = 0x04
	2 bytes	Packet Size
	[BEGIN ENCRYPTED AREA]	
10	4 bytes	File ID being uploaded (LBS first)
	4 bytes	Total file size (LSB first)
	4 bytes	File flags (compression info, permissions, etc. - TBD)
	2 bytes	Number of Segments (LSB first)
15	1 byte	Filename length
	Variable	Filename
	(Pad encrypted area to even multiple of 8-bytes)	
	[END ENCRYPTED AREA]	
	2 bytes	CRC

20 Retrieve File

A request to transfer a file to a client if the client's version of the file is missing or out of date. Retrieve file request packets have the following data structure:

25	Field Size:	Description:
	1 byte	Packet Type = 0x81
	1 byte	Packet Subtype = 0x1F
	2 bytes	Packet Size = 22
	[BEGIN ENCRYPTED AREA]	
30	1 byte	File Type
		0 = Content
		1 = Service file
	4 bytes	File ID
	4 bytes	Current file size
35	4 bytes	Current file modification date
	2 bytes	Current file CRC
	(Pad encrypted area to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
	2 bytes	CRC

40 Retrieve File Response

This packet is sent to the client immediately if the requested file is up to date, or does not exist, or after a series of file download packets if the file needs to be downloaded.

Retrieve file request packets have the following data structure:

	Field Size:	Description:
	1 byte	Packet Type = 0x81
5	1 byte	Packet Subtype = 0x20
	2 bytes	Packet Size = 22
	[BEGIN ENCRYPTED AREA]	
	1 byte	Status
		0 = File downloaded successfully
10		1 = Current file is up to date
		2 = Error downloading
		3 = File not found
		4 = System error
	4 bytes	File ID
15	4 bytes	Current file size
	4 bytes	Current file modification date
	2 bytes	Current file CRC
	(Pad encrypted area to even 8-byte boundary with zeros)	
	[END ENCRYPTED AREA]	
20	2 bytes	CRC

For the synchronization function, assuming that the inventory of a customer is being downloaded, e.g. from a database associated with a regional server to a database associated with an arcade, public PC or validation and redemption terminal, the packets can add a field (e.g. 4 bytes) which identifies the customer.

The administration terminal 43 contains a database which specifies the entire system, in subdatabases which can be specified as classes. The content of the complete database, or the content of each subdatabase can be specified by a single administration entity, or any can be specified by authorized suppliers. In the latter case, the content of the subdatabases can be filled by communication between the terminal 43 and suppliers' terminals, using the system shown in Figure 1.

Subdatabases are preferred to relate to the following:

Suppliers	Locations
Game Machines	Game Software
40 Redemptions	Tournaments

Merchandise Categories	Pricing
Prizes	Alarms
Schedules	Manufacturers
Customers	Technicians
5 Advertising	Content
Coupons	Loyalty Programs
Promotions	Services
Profile Descriptor (e.g. VALs)	

VALTM is a standard profile descriptor which has
 10 been adopted by some companies. VALs or classification
 systems used by other companies can be stored and used in
 addition to or as a replacement for the demographic
 classification described herein.

Game Software is an example of the above. A field
 15 of the above can be the identification of a game which is
 located on a CD ROM, hard disk drive, DVD or mass
 semiconductor or other storage means at a game location.
 Another field can be an algorithm which controls the
 parameters of the game. Another field can store score
 20 brackets which a player must reach in order to win a
 prize. Another field can store timing information which
 can be used to modify the brackets. Other fields can be
 filled with other data required for the game.

The other subdatabases can be similarly filled
 25 with data to specify the operation of each parameter of
 the system. For example, a merchant can specify a
 premium related to the merchant's store as a prize to the
 player of a game at an arcade nearby to the store. A
 field in the prize or coupon subdatabase can point to the
 30 game or games for which the premium or coupon is to be
 distributed, another can specify a score bracket to be
 achieved (which can be >0) by the player in order to win
 the premium or coupon, etc.

Once the database has been completed to a required
 35 level, the subdatabases are downloaded to the decision

support server 7, which stores it in its database 9. The decision support server then downloads the data as related to the various peripheral terminals to the associated regional servers, which in turn stores
5 required data in their respective databases 5A to 5N, and downloads the data related to the respective terminals to those of concern.

As a further example, regional server 5A downloads initialization parameters to the master games 21 in the
10 arcades in which authorized game machines are located which can communicate with the regional server 5A. It also downloads initialization parameters to the software at the public PCs with which it can communicate, which have been authorized at the administration location.

15 For example, the initialization parameters may initialize or authorize operation of particular video games, with particular score brackets, at the arcade 17 and at the public PC. The initialization parameters may also initialize a program at the public PC which controls
20 acceptance of payments, and/or acceptance of orders for merchandise, and/or redemption of premiums, etc., and also controls transmission of data to the regional server which updates the account of the customer in currency or other media of exchange such as loyalty points, etc.

25 Table 1 which is attached at the end of this specification describes preferred subdatabases to be established initially at the administration terminal, which specify games, software, advertisements and other matters, and their parameters, which are downloaded to
30 the terminals in a manner as described above. Each of the subdatabases is headed by a table name, and each of the fields describes the content of the field; its content and use are self evident from the name chosen.

It was noted above that parameters can be
35 downloaded for the operation of a game. The shell of a

game can have a requirement for score formulae to be inserted. The score formulae can be determined at the administration terminal, and downloaded as noted earlier, as one or more parameters of the game.

5 For example, consider the Pacman[™] game. Key graphical elements of the game are dots, fruits, ghosts, and the game requires a scope value. The dots can be given a statistic S00, the fruits a statistic S01, the ghosts a statistic S02 and the scope a statistic S03.

10 A formula can be determined, e.g. $(S00 + 5) * S03$ to determine an output score for dots, for example. The scores can be used to alter the game, or to alter tournament derived scores. The formulae can be modified by a player rating depending on the player identified
15 (e.g. a handicap or demographic indicator), a game handicap, or a predetermined algorithm.

 In operation, as customer may attend a validation or redemption terminal location at the location of a merchant, or at an arcade, or at the location a public
20 PC, and wish to enter credits, or wish to be registered in the system. Entering of credits can be effected by an attendant keying in relevant information to a terminal, sufficient to identify the person, e.g. name and address, etc., or the customer can perform the same function via
25 an automatic terminal such as a card vending machine which provides instructions how to proceed. If there are no credits to be entered, the customer should choose a PIN number, which is recorded in a hidden manner (such as in a magnetic stripe or in the memory of a "smart card"
30 carried on the card), and the card is dispensed or personally given to the customer. If a currency credit is to be posted, the customer will pay the attendant or deposit money into the card vending machine, which is recorded against the identity of the customer. The data
35 entered into the terminal is then uploaded to the

regional server e.g. 1A, and is stored in its associated database 5A.

The customer now will undertake certain activities, such as purchasing goods or services from any of the merchants registered in the system, or play games at the arcade. If the customer plays games at the arcade, and wishes to use the credit balance in his account to play, he will swipe his card in a card reader at the game, which identifies him and the value to be debited from his balance. If he wishes to purchase goods or services against his credit, or purchase a different service offered at the public PC (e.g. purchase printing or communication services) his card will be swiped in a card reader at the location of the merchant where he wishes to purchase the goods or services or at the public PC.

In any such case, the identity of the customer, the location of the customer, the identity of the merchant, game or public PC, and the amount of the debit will be uploaded into and stored in the database 5A after being recorded at the location (e.g. in database 23 if the transaction occurred at the arcade).

The administrator had already entered into its database using terminal 43 loyalty point values for certain activities, which had been downloaded and stored at database 9, and then loaded to databases 5A..5N. Therefore for each activity undertaken by the customer for which loyalty points are to be awarded, they are credited to the customer's account stored in the customer's database of the regional server. These loyalty points can then be used as a form of scrip by the customer, apart from, or with cash deposits.

In addition, the administrator can specify and store records in the aforementioned databases that premium coupons should be dispensed for the customer at the

determined location of the customer via a local printer, for defined activities undertaken by the customer.

Loyalty points, game credits for future play and/or coupons can also be awarded to the account of the customer and/or dispensed when predetermined scores or
5 score brackets are achieved on the games (whether due to individual play or in tournaments) by the identified customer player.

The amounts of the loyalty points, game credits or
10 coupons can be varied by time, by location, by number of players having played the game or tournament within a certain time interval or within certain clock times, by number of players, by demographic of the player, by difficulty of the game, by game handicap, etc. All such
15 variations can be established at the administration location by means of a matrix (or form) to be filled in, such as shown in Table I attached hereto and forming part of this specification, and stored in the databases as described above. Indeed, the administrator can indicate
20 a conversion of loyalty points to currency, for redemption or for use to purchase goods of particular ones or of any goods or services provided by member merchants.

When a customer wishes to redeem a coupon, the
25 customer presents it to a merchant, public pc operator, public pc, etc., its bar code is read by a bar code reader at a validation and redemption terminal, and the customer's identification is read from his card by a card reader, at the validation and redemption terminal. The
30 identification (and value, if desired for greater security) of the coupon is uploaded to the regional server, and the database is accessed using the identification of the customer. The identity of the coupon is then checked in the customer's record, and if
35 the coupon had been validly recorded, a message is sent

to the validation and redemption terminal acknowledging the validity of the transaction. An acknowledgement is entered into the terminal and is uploaded to the regional server, which either marks the coupon record as having
5 been used, or deletes it from the customer's record. In either case, information of the awarding, and subsequently of the redemption of the coupon, is entered to database 9 via the decision support server, to provide a statistical report to terminal 43 either immediately or
10 from time to time as to volumes and identities of services used by the customer or by groups of customers, by demographics, etc. and coupons and loyalty points awarded and redeemed, and the identity of the merchant or terminal performing the redemption.

15 These statistics provide a good measure for the administrator to be able to use for reporting and/or advertising of the benefits of the system to prospective merchants and others which may wish to advertise on the system or which may wish to include their goods, services
20 and locations as part of the system. In addition, it provides the information to the administrator for settling the merchants' accounts, as described earlier. The loyalty points thus have been used as a medium of exchange separate from currency.

25 It should be noted that while the description herein is to a client-server type system which communicate in a particular manner, the equivalent function and structure of the invention could also be realized by persons skilled in the art understanding this
30 invention via one or more browsers which interface one or more web pages, either via the internet or on one or more intranets which are either self-contained or which communicate via the internet, or via private network.

35 A person understanding this invention may now conceive of alternate embodiments and enhancements using

75

the principles described herein. All such embodiments and enhancements are considered to be within the spirit and scope of this invention as defined in the claims appended hereto.

5

TABLE 1

```
# initdb.ini
#
# NOTES:
# 1. Database name cannot exceed 23 characters
# 2. Allowed data type are LONG, SHORT, BIN, VARBIN
# 3. Table names cannot exceed 23 characters
# 4. Field names cannot exceed 23 characters
# 5. Arrays of SHORT and LONG are not supported (set
    size = 1)
# 6. Variable binary fields as primary keys is not
    supported
# 7. Each table can have only one variable binary
    field
# 8. Variable binary field must be last field in
    table
# 9. Variable binary field must be preceded by SHORT
    size field
# 10. File created will be database name with ".db"
    appended
# 11. Tables cannot exceed 32 fields
```

DATABASE = nani

```
TABLE      = AD
  FIELD    = RECORD_ID           : BIN      : 6 : PK
  FIELD    = AD_ID               : LONG     : 1
  FIELD    = CONTENT_ID          : LONG     : 1
  FIELD    = PRECEDING_AD_ID     : LONG     : 1
  FIELD    = NEXT_AD_ID          : LONG     : 1
  FIELD    = MAX_VIEWS_PER_PERSON : SHORT    : 1
  FIELD    = FLAGS               : BIN      : 1
```

```
TABLE      = AD_SCHEDULE
  FIELD    = RECORD_ID           : BIN      : 6 : PK
  FIELD    = AD_ID               : LONG     : 1
  FIELD    = TERMINAL_ID         : BIN      : 6
  FIELD    = SCHEDULE_ID         : LONG     : 1
  FIELD    = FLAGS               : BIN      : 1
```

```
TABLE      = AD_TARGET
  FIELD    = RECORD_ID           : BIN      : 6 : PK
  FIELD    = TARGET_ID           : LONG     : 1
  FIELD    = AD_ID               : LONG     : 1
  FIELD    = TARGET_TYPE         : BIN      : 1
  FIELD    = TARGET_EVENT_ID     : LONG     : 1
  FIELD    = TARGET_SERVICE_ID   : LONG     : 1
  FIELD    = SLOT                : BIN      : 1
  FIELD    = PRIORITY            : BIN      : 1
  FIELD    = MIN_DAILY_EXPOSURES : SHORT    : 1
```

FIELD = MAX_DAILY_EXPOSURES	:	SHORT	:	1
FIELD = MIN_TOTAL_EXPOSURES	:	LONG	:	1
FIELD = MAX_TOTAL_EXPOSURES	:	LONG	:	1
FIELD = FLAGS	:	BIN	:	1
TABLE = AD_TARGET_DEMOGRAPHIC				
FIELD = RECORD_ID	:	BIN	:	6 : PK
FIELD = TARGET_ID	:	LONG	:	1
FIELD = DEMOGRAPHIC	:	LONG	:	1
FIELD = FLAGS	:	BIN	:	1
TABLE = AD_TARGET_PROMOTION				
FIELD = RECORD_ID	:	BIN	:	6 : PK
FIELD = TARGET_ID	:	LONG	:	1
FIELD = PROMOTION_ID	:	LONG	:	1
FIELD = FLAGS	:	BIN	:	1
TABLE = AD_URC				
FIELD = RECORD_ID	:	BIN	:	6 : PK
FIELD = AD_ID	:	LONG	:	1
FIELD = URC	:	LONG	:	1
FIELD = FLAGS	:	BIN	:	1
TABLE = ALARM_HANDLER				
FIELD = RECORD_ID	:	BIN	:	6 : PK
FIELD = HANDLER_ID	:	LONG	:	1
FIELD = ALARM_CODE	:	BIN	:	1
FIELD = PRIORITY	:	BIN	:	1
FIELD = PROCESS_TYPE	:	BIN	:	1
FIELD = FLAGS	:	BIN	:	1
FIELD = PROCESS_DATA_SIZE	:	SHORT	:	1
FIELD = PROCESS_DATA	:	VARBIN	:	1
TABLE = BRACKET				
FIELD = RECORD_ID	:	BIN	:	6 : PK
FIELD = TOURNAMENT_ID	:	LONG	:	1
FIELD = BRACKET_ID	:	BIN	:	1
FIELD = SHORT_NAME	:	BIN	:	28
FIELD = NAME	:	BIN	:	72
FIELD = START_DATE_TIME	:	LONG	:	1
FIELD = END_DATE_TIME	:	LONG	:	1
FIELD = SCORE_POSTING_TIME	:	LONG	:	1
FIELD = ENTRY_PRICE	:	LONG	:	1
FIELD = PREPAID_PLAYS	:	SHORT	:	1
FIELD = MIN_GAMES_PER_PLAYER	:	SHORT	:	1
FIELD = MAX_GAMES_PER_PLAYER	:	SHORT	:	1
FIELD = MIN_GAMES_PER_TEAM	:	SHORT	:	1
FIELD = MAX_GAMES_PER_TEAM	:	SHORT	:	1
FIELD = LEADERBOARD_ID	:	LONG	:	1
FIELD = SPONSER	:	BIN	:	40
FIELD = ICON	:	LONG	:	1
FIELD = SPLASH_SCREEN	:	LONG	:	1

FIELD =	FLAGS	:	BIN	:	1	
FIELD =	RANKING_ALGORITHM	:	BIN	:	1	
TABLE =	BRACKET_ADVANCE					
FIELD =	RECORD_ID	:	BIN	:	6	: PK
FIELD =	TOURNAMENT_ID	:	LONG	:	1	
FIELD =	BRACKET_ID	:	BIN	:	1	
FIELD =	ADVANCE_TYPE	:	BIN	:	1	
FIELD =	FROM_TOURNAMENT_ID	:	LONG	:	1	
FIELD =	FROM_BRACKET_ID	:	BIN	:	1	
FIELD =	FROM_LOW	:	LONG	:	1	
FIELD =	TO_HIGH	:	LONG	:	1	
FIELD =	SERVICE_ID	:	LONG	:	1	
FIELD =	PROFILE	:	BIN	:	1	
FIELD =	FLAGS	:	BIN	:	1	
TABLE =	BRACKET_MEMBERSHIP					
FIELD =	RECORD_ID	:	BIN	:	6	: PK
FIELD =	TOURNAMENT_ID	:	LONG	:	1	
FIELD =	BRACKET_ID	:	BIN	:	1	
FIELD =	SUBSCRIBER_ID	:	LONG	:	1	
FIELD =	FLAGS	:	BIN	:	1	
TABLE =	BRACKET_PRIZE					
FIELD =	RECORD_ID	:	BIN	:	6	: PK
FIELD =	TOURNAMENT_ID	:	LONG	:	1	
FIELD =	BRACKET_ID	:	BIN	:	1	
FIELD =	PRIZE_ITEM_ID	:	LONG	:	1	
FIELD =	PRIZE_PERCENT_OF_POOL	:	BIN	:	1	
FIELD =	WINNING_PLACE	:	BIN	:	1	
FIELD =	PLACE_NAME	:	BIN	:	20	
FIELD =	NUM_WINNERS	:	LONG	:	1	
FIELD =	EXPIRATION_DATE	:	LONG	:	1	
FIELD =	FLAGS	:	BIN	:	1	
TABLE =	BRACKET_PROMOTION					
FIELD =	RECORD_ID	:	BIN	:	6	: PK
FIELD =	TOURNAMENT_ID	:	LONG	:	1	
FIELD =	BRACKET_ID	:	BIN	:	1	
FIELD =	PROMOTION_ID	:	LONG	:	1	
FIELD =	FLAGS	:	BIN	:	1	
FIELD =	MIN_RANK	:	SHORT	:	1	
TABLE =	BRACKET_RULE_SCREEN					
FIELD =	RECORD_ID	:	BIN	:	6	: PK
FIELD =	TOURNAMENT_ID	:	LONG	:	1	
FIELD =	BRACKET_ID	:	BIN	:	1	
FIELD =	SERVICE_ID	:	LONG	:	1	
FIELD =	SCREEN_INDEX	:	BIN	:	1	
FIELD =	CONTENT_ID	:	LONG	:	1	
FIELD =	FLAGS	:	BIN	:	1	

TABLE = BRACKET_SCHEDULE			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = TOURNAMENT_ID	:	LONG	: 1
FIELD = BRACKET_ID	:	BIN	: 1
FIELD = TERMINAL_ID	:	BIN	: 6
FIELD = SCHEDULE_ID	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
FIELD = NUM_LOCAL_LEADERS	:	SHORT	: 1
TABLE = BRACKET_SERVICE			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = TOURNAMENT_ID	:	LONG	: 1
FIELD = BRACKET_ID	:	BIN	: 1
FIELD = SERVICE_ID	:	LONG	: 1
FIELD = PROFILE	:	BIN	: 1
FIELD = PRICING_ID	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
FIELD = MIN_RATING_ALLOWED	:	BIN	: 1
FIELD = MAX_RATING_ALLOWED	:	BIN	: 1
TABLE = CATALOG_CATEGORY			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = CATEGORY_ID	:	LONG	: 1
FIELD = CATEGORY_NAME	:	BIN	: 40
FIELD = PARENT_CATEGORY_ID	:	LONG	: 1
FIELD = ICON	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = CATALOG_CATEGORY_URC			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = CATEGORY_ID	:	LONG	: 1
FIELD = URC	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = CONTENT			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = CONTENT_ID	:	LONG	: 1
FIELD = FORMAT	:	BIN	: 1
FIELD = DURATION_MS	:	LONG	: 1
FIELD = PATHNAME	:	BIN	: 60
FIELD = FILE_SIZE	:	LONG	: 1
FIELD = CRC	:	SHORT	: 1
FIELD = FILE_TIMESTAMP	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = COUPON			
FIELD = RECORD_ID	:	BIN	: 6
FIELD = COUPON_ID	:	LONG	: 1
FIELD = DESCRIPTION	:	BIN	: 40
FIELD = CONTENT_ID	:	LONG	: 1
FIELD = UPC_SYMBOL	:	BIN	: 12
FIELD = FACE_VALUE	:	LONG	: 1
FIELD = MAX_ISSUED_PER_PLAYER	:	SHORT	: 1

FIELD	=	FLAGS	:	BIN	:	1
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TABLE	=	COUPON_ITEM_SCHEDULE				
FIELD	=	RECORD_ID	:	BIN	:	6 : PK
FIELD	=	COUPON_ID	:	LONG	:	1
FIELD	=	ITEM_ID	:	LONG	:	1
FIELD	=	TERMINAL_ID	:	BIN	:	6
FIELD	=	SCHEDULE_ID	:	LONG	:	1
FIELD	=	COUPON_CASH_VALUE	:	LONG	:	1
FIELD	=	COUPON_PRICE	:	LONG	:	1
FIELD	=	NUM_ITEMS_PER_COUPON	:	SHORT	:	1
FIELD	=	MAX_REDEEMED	:	SHORT	:	1
FIELD	=	FLAGS	:	BIN	:	1

TABLE	=	COUPON_SERVICE_SCHEDULE				
FIELD	=	RECORD_ID	:	BIN	:	6 : PK
FIELD	=	COUPON_ID	:	LONG	:	1
FIELD	=	SERVICE_ID	:	LONG	:	1
FIELD	=	TERMINAL_ID	:	BIN	:	6
FIELD	=	SCHEDULE_ID	:	LONG	:	1
FIELD	=	COUPON_CASH_VALUE	:	LONG	:	1
FIELD	=	COUPON_PRICE	:	LONG	:	1
FIELD	=	NUM_PLAYS_PER_COUPON	:	SHORT	:	1
FIELD	=	MAX_REDEEMED	:	SHORT	:	1
FIELD	=	FLAGS	:	BIN	:	1

TABLE	=	FILE_INFO				
FIELD	=	RECORD_ID	:	BIN	:	6 : PK
FIELD	=	FILE_ID	:	LONG	:	1
FIELD	=	FILESET_ID	:	LONG	:	1
FIELD	=	PATHNAME	:	BIN	:	60
FIELD	=	FILE_SIZE	:	LONG	:	1
FIELD	=	CRC	:	SHORT	:	1
FIELD	=	FILE_TIMESTAMP	:	LONG	:	1
FIELD	=	FLAGS	:	BIN	:	1

TABLE	=	ITEM				
FIELD	=	RECORD_ID	:	BIN	:	6 : PK
FIELD	=	ITEM_ID	:	LONG	:	1
FIELD	=	CATEGORY_ID	:	LONG	:	1
FIELD	=	ITEM_NAME	:	BIN	:	40
FIELD	=	MIN_PRICE	:	LONG	:	1
FIELD	=	MAX_PRICE	:	LONG	:	1
FIELD	=	ICON	:	LONG	:	1
FIELD	=	FLAGS	:	BIN	:	1
FIELD	=	ITEM_COST	:	LONG	:	1
FIELD	=	RETAIL_PRICE	:	LONG	:	1
FIELD	=	QUANTITY_ON_HAND	:	LONG	:	1
FIELD	=	MIN_QUANTITY_ON_HAND	:	LONG	:	1
FIELD	=	DISTRIBUTION_LOCATION	:	BIN	:	40

TABLE = ITEM_ATTRIBUTE			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = ITEM_ID	:	LONG	: 1
FIELD = ATTRIBUTE_ID	:	BIN	: 1
FIELD = ATTRIBUTE_NAME	:	BIN	: 40
FIELD = DATA_TYPE	:	BIN	: 1
FIELD = MINIMUM	:	LONG	: 1
FIELD = MAXIMUM	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = ITEM_ATTRIBUTE_VALUE			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = ITEM_ID	:	LONG	: 1
FIELD = ATTRIBUTE_ID	:	BIN	: 1
FIELD = VALUE_INDEX	:	BIN	: 1
FIELD = VALUE_TEXT	:	BIN	: 30
FIELD = FLAGS	:	BIN	: 1
TABLE = ITEM_PROMOTION			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = ITEM_ID	:	LONG	: 1
FIELD = PROMOTION_ID	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = ITEM_SCHEDULE			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = ITEM_ID	:	LONG	: 1
FIELD = TERMINAL_ID	:	BIN	: 6
FIELD = SCHEDULE_ID	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = ITEM_SCREEN			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = ITEM_ID	:	LONG	: 1
FIELD = SCREEN_INDEX	:	BIN	: 1
FIELD = CONTENT_ID	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = ITEM_URC			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = ITEM_ID	:	LONG	: 1
FIELD = URC	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = LEADERBOARD			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = LEADERBOARD_ID	:	LONG	: 1
FIELD = LEADERBOARD_DATE_TIME	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
FIELD = MAX_LEADERS	:	SHORT	: 1

TABLE = LEADERBOARD_LEADER			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = LEADERBOARD_ID	: LONG	: 1	
FIELD = SUBSCRIBER_ID	: LONG	: 1	
FIELD = ALIAS	: BIN	: 26	
FIELD = LOCATION_NAME	: BIN	: 26	
FIELD = LOCATION_CITY_STATE	: BIN	: 26	
FIELD = PRIZE_NAME	: BIN	: 26	
FIELD = SCORE	: LONG	: 1	
FIELD = SCORE_DATE_TIME	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = LEADERBOARD_RANKING			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = LEADERBOARD_ID	: LONG	: 1	
FIELD = RANK	: SHORT	: 1	
FIELD = SUBSCRIBER_ID	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = LOCATION			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = LOCATION_ID	: LONG	: 1	
FIELD = SHORT_NAME	: BIN	: 26	
FIELD = NAME	: BIN	: 72	
FIELD = SHORT_CITY_STATE	: BIN	: 26	
FIELD = CITY_STATE	: BIN	: 72	
FIELD = TIME_ZONE	: BIN	: 1	
FIELD = MAX_DAILY_PAYOUT	: LONG	: 1	
FIELD = DIALIN_INTERVAL	: LONG	: 1	
FIELD = LANGUAGE_CODE	: SHORT	: 1	
FIELD = COUNTRY_CODE	: SHORT	: 1	
FIELD = FLAGS	: BIN	: 1	
FIELD = TOKEN_PRICE	: LONG	: 1	
TABLE = LOCATION_ATTRACT_SCREEN			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = LOCATION_ID	: LONG	: 1	
FIELD = SCREEN_INDEX	: BIN	: 1	
FIELD = CONTENT_ID	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = LOCATION_COUPON_SCHED			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = LOCATION_ID	: LONG	: 1	
FIELD = COUPON_ID	: LONG	: 1	
FIELD = SCHEDULE_ID	: LONG	: 1	
FIELD = COUPON_PRICE	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = LOCATION_LOYALTY_SCHED			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = LOCATION_ID	: LONG	: 1	

FIELD	=	LOYALTY_PROGRAM_ID	:	LONG	:	1
FIELD	=	SCHEDULE_ID	:	LONG	:	1
FIELD	=	POINT_PRICE	:	LONG	:	1
FIELD	=	FLAGS	:	BIN	:	1
TABLE	=	LOCATION_URC				
FIELD	=	RECORD_ID	:	BIN	:	6 : PK
FIELD	=	LOCATION_ID	:	LONG	:	1
FIELD	=	URC	:	LONG	:	1
FIELD	=	FLAGS	:	BIN	:	1
TABLE	=	LOYALTY_PROGRAM				
FIELD	=	RECORD_ID	:	BIN	:	6
FIELD	=	LOYALTY_PROGRAM_ID	:	LONG	:	1
FIELD	=	NAME	:	BIN	:	40
FIELD	=	POINT_LABEL	:	BIN	:	20
FIELD	=	FLAGS	:	BIN	:	1
TABLE	=	LOYALTY_ITEM_SCHED				
FIELD	=	RECORD_ID	:	BIN	:	6 : PK
FIELD	=	LOYALTY_PROGRAM_ID	:	LONG	:	1
FIELD	=	ITEM_ID	:	LONG	:	1
FIELD	=	TERMINAL_ID	:	BIN	:	6
FIELD	=	SCHEDULE_ID	:	LONG	:	1
FIELD	=	POINT_CASH_VALUE	:	LONG	:	1
FIELD	=	POINT_PRICE	:	LONG	:	1
FIELD	=	POINT_PER_ITEM	:	SHORT	:	1
FIELD	=	ITEMS_PER_POINT	:	SHORT	:	1
FIELD	=	MAX_USED_PER_ITEM	:	SHORT	:	1
FIELD	=	FLAGS	:	BIN	:	1
TABLE	=	LOYALTY_SERVICE_SCHED				
FIELD	=	RECORD_ID	:	BIN	:	6 : PK
FIELD	=	LOYALTY_PROGRAM_ID	:	LONG	:	1
FIELD	=	SERVICE_ID	:	LONG	:	1
FIELD	=	TERMINAL_ID	:	BIN	:	6
FIELD	=	SCHEDULE_ID	:	LONG	:	1
FIELD	=	POINT_CASH_VALUE	:	LONG	:	1
FIELD	=	POINT_PRICE	:	LONG	:	1
FIELD	=	POINTS_PER_PLAY	:	SHORT	:	1
FIELD	=	PLAYS_PER_POINT	:	SHORT	:	1
FIELD	=	MAX_USED_PER_PLAY	:	SHORT	:	1
FIELD	=	FLAGS	:	BIN	:	1
TABLE	=	PRICING				
FIELD	=	RECORD_ID	:	BIN	:	6 : PK
FIELD	=	PRICING_ID	:	LONG	:	1
FIELD	=	PRICE_TO_START	:	LONG	:	1
FIELD	=	PRICE_TO_CONTINUE	:	LONG	:	1
FIELD	=	START_DURATION	:	LONG	:	1
FIELD	=	CONTINUE_DURATION	:	LONG	:	1
FIELD	=	FLAGS	:	BIN	:	1

TABLE	=	PROMOTION			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	PROMOTION_ID	:	LONG	: 1
FIELD	=	FLAGS	:	BIN	: 1
TABLE	=	PROMOTION_COUPON			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	PROMOTION_ID	:	LONG	: 1
FIELD	=	COUPON_ID_TO_AWARD	:	LONG	: 1
FIELD	=	FLAGS	:	BIN	: 1
TABLE	=	PROMOTION_LOYALTY			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	PROMOTION_ID	:	LONG	: 1
FIELD	=	LOYALTY_PROGRAM_ID	:	LONG	: 1
FIELD	=	NUM_POINTS_TO_AWARD	:	SHORT	: 1
FIELD	=	FLAGS	:	BIN	: 1
TABLE	=	REDEMPTION			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	REDEMPTION_ID	:	LONG	: 1
FIELD	=	FLAGS	:	BIN	: 1
FIELD	=	MIN_RATING_ALLOWED	:	BIN	: 1
FIELD	=	MAX_RATING_ALLOWED	:	BIN	: 1
FIELD	=	SERVICE_ID	:	LONG	: 1
FIELD	=	PROFILE	:	BIN	: 1
FIELD	=	SHORT_NAME	:	BIN	: 28
FIELD	=	NAME	:	BIN	: 72
FIELD	=	PRICING_ID	:	LONG	: 1
FIELD	=	START_DATE_TIME	:	LONG	: 1
FIELD	=	END_DATE_TIME	:	LONG	: 1
FIELD	=	SPONSER	:	BIN	: 40
FIELD	=	ICON	:	LONG	: 1
FIELD	=	SPLASH_SCREEN	:	LONG	: 1
FIELD	=	PERCENT_MONEY_TO_POOL	:	BIN	: 1
FIELD	=	CURRENT_POOL_VALUE	:	LONG	: 1
FIELD	=	VALUE_OF_AVAIL_PRIZES	:	LONG	: 1
FIELD	=	PLAYS_TO_DATE	:	LONG	: 1
FIELD	=	LAST_UPDATE_DATE_TIME	:	LONG	: 1
TABLE	=	REDEMPTION_PAR_LEVEL			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	REDEMPTION_ID	:	LONG	: 1
FIELD	=	PAR_LEVEL	:	BIN	: 1
FIELD	=	PAR_SCORE	:	LONG	: 1
FIELD	=	TARGET_PAY_PERCENT	:	BIN	: 1
FIELD	=	PRIZE_ITEM_ID	:	LONG	: 1
FIELD	=	PERCENT_OF_POOL_APPLIED	:	BIN	: 1
FIELD	=	EXPIRATION_DATE	:	LONG	: 1
FIELD	=	NUM_REMAINING	:	LONG	: 1
FIELD	=	MIN_WIN_INTERVAL	:	LONG	: 1
FIELD	=	FLAGS	:	BIN	: 1

FIELD = MIN_PRIOR_PLAYS	: LONG	: 1	
TABLE = REDEMPTION_PROMOTION			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = REDEMPTION_ID	: LONG	: 1	
FIELD = PROMOTION_ID	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
FIELD = PAR_LEVEL	: BIN	: 1	
TABLE = REDEMPTION_RULE_SCREEN			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = REDEMPTION_ID	: LONG	: 1	
FIELD = SCREEN_INDEX	: BIN	: 1	
FIELD = CONTENT_ID	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = REDEMPTION_SCHEDULE			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = REDEMPTION_ID	: LONG	: 1	
FIELD = TERMINAL_ID	: BIN	: 6	
FIELD = SCHEDULE_ID	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = REDEMPTION_URC			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = REDEMPTION_ID	: LONG	: 1	
FIELD = URC	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SCHEDULE			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SCHEDULE_ID	: LONG	: 1	
FIELD = START_DATE_TIME	: LONG	: 1	
FIELD = END_DATE_TIME	: LONG	: 1	
FIELD = WEEKDAYS	: BIN	: 1	
FIELD = START_TIME_OF_DAY	: LONG	: 1	
FIELD = END_TIME_OF_DAY	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = SERVICE_TYPE	: BIN	: 1	
FIELD = FLAGS	: BIN	: 1	
FIELD = SHORT_NAME	: BIN	: 30	
FIELD = NAME	: BIN	: 72	
FIELD = ICON	: LONG	: 1	
FIELD = ATTRACT_SCREEN	: LONG	: 1	
FIELD = SW_CAPABILITIES	: BIN	: 10	
FIELD = HW_REQUIREMENTS	: BIN	: 10	
FIELD = FILESET_ID	: LONG	: 1	
FIELD = EXECUTABLE_FILE_ID	: LONG	: 1	

TABLE = SERVICE PROFILE			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = PROFILE	: BIN	: 1	
FIELD = PROFILE_NAME	: BIN	: 40	
FIELD = FLAGS	: BIN	: 1	
FIELD = SCORE_FORMULA_LENGTH	: SHORT	: 1	
FIELD = SCORE_FORMULA	: VARBIN	: 1	
TABLE = SERVICE_PROFILE_SETTING			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = PROFILE	: BIN	: 1	
FIELD = SETTING_ID	: LONG	: 1	
FIELD = SETTING_VALUE	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE_PROMOTION			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = PROMOTION_ID	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE_RATING			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = RATING	: BIN	: 1	
FIELD = DESCRIPTION	: BIN	: 26	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE_SCHEDULE			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = TERMINAL_ID	: BIN	: 6	
FIELD = SCHEDULE_ID	: LONG	: 1	
FIELD = PROFILE	: BIN	: 1	
FIELD = PRICING_ID	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE_SETTING			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = SETTING_ID	: LONG	: 1	
FIELD = SETTING_NAME	: BIN	: 32	
FIELD = TYPE	: BIN	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE_SLOT			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = SLOT	: BIN	: 1	

FIELD = SCHEDULE_ID	: LONG	: 1	
FIELD = NUM_AD_PLAYS	: BIN	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE_STATISTIC			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = STATISTIC_ID	: LONG	: 1	
FIELD = STATISTIC_NAME	: BIN	: 20	
FIELD = LOWER_LIMIT	: LONG	: 1	
FIELD = UPPER_LIMIT	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE_TERMINAL			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = TERMINAL_ID	: BIN	: 6	
FIELD = LICENSE_KEY	: BIN	: 16	
FIELD = FILESET_ID	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE_TYPE			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = TYPE	: BIN	: 1	
FIELD = PARENT_TYPE	: BIN	: 1	
FIELD = TYPE_NAME	: BIN	: 16	
FIELD = FLAGS	: BIN	: 1	
TABLE = SERVICE_URC			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SERVICE_ID	: LONG	: 1	
FIELD = URC	: LONG	: 1	
FIELD = FLAGS	: BIN	: 1	
TABLE = SUBSCRIBER			
FIELD = RECORD_ID	: BIN	: 6	: PK
FIELD = SUBSCRIBER_ID	: LONG	: 1	
FIELD = ALIAS	: BIN	: 26	
FIELD = FIRST_NAME	: BIN	: 20	
FIELD = LAST_NAME	: BIN	: 20	
FIELD = MIDDLE_INITIAL	: BIN	: 2	
FIELD = STREET_ADDRESS	: BIN	: 40	
FIELD = POSTAL_CODE	: BIN	: 10	
FIELD = PHONE_NUMBER	: BIN	: 10	
FIELD = BIRTH_DAY	: BIN	: 1	
FIELD = BIRTH_MONTH	: BIN	: 1	
FIELD = BIRTH_YEAR	: SHORT	: 1	
FIELD = GENDER	: BIN	: 1	
FIELD = FLAGS	: BIN	: 1	
FIELD = DEMOGRAPHIC	: LONG	: 1	
FIELD = LAST_UPDATE_DATE_TIME	: LONG	: 1	

TABLE = SUBSCRIBER_AD			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = SUBSCRIBER_ID	:	LONG	: 1
FIELD = AD_ID	:	LONG	: 1
FIELD = VIEW_DATE_TIME	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = SUBSCRIBER_AVATAR			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = SUBSCRIBER_ID	:	LONG	: 1
FIELD = AVATAR_TYPE	:	BIN	: 1
FIELD = CONTENT_ID	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = SUBSCRIBER_BRACKET			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = SUBSCRIBER_ID	:	LONG	: 1
FIELD = TOURNAMENT_ID	:	LONG	: 1
FIELD = BRACKET_ID	:	BIN	: 1
FIELD = GAMES_PLAYED	:	SHORT	: 1
FIELD = FLAGS	:	BIN	: 1
FIELD = RANK	:	LONG	: 1
FIELD = RANK_DATE_TIME	:	LONG	: 1
FIELD = RANK_SCORE	:	LONG	: 1
FIELD = AVERAGE_SCORE	:	LONG	: 1
TABLE = SUBSCRIBER_CARD			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = SUBSCRIBER_ID	:	LONG	: 1
FIELD = CARD_TYPE	:	BIN	: 1
FIELD = CARD_DATA	:	BIN	: 16
FIELD = FLAGS	:	BIN	: 1
TABLE = SUBSCRIBER_RATING			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = SUBSCRIBER_ID	:	LONG	: 1
FIELD = SERVICE_ID	:	LONG	: 1
FIELD = PROFILE	:	BIN	: 1
FIELD = RATING	:	BIN	: 1
FIELD = HANDICAP	:	LONG	: 1
FIELD = PLAYS_TO_QUALIFY	:	BIN	: 1
FIELD = FLAGS	:	BIN	: 1
TABLE = SUBSCRIBER_SAVE_STATE			
FIELD = RECORD_ID	:	BIN	: 6 : PK
FIELD = SUBSCRIBER_ID	:	LONG	: 1
FIELD = SERVICE_ID	:	LONG	: 1
FIELD = SLOT_NUMBER	:	BIN	: 1
FIELD = PROFILE	:	BIN	: 1
FIELD = SAVE_STATE_NAME	:	BIN	: 20
FIELD = DATA_FILE_ID	:	LONG	: 1
FIELD = FLAGS	:	BIN	: 1

TABLE	=	SUBSCRIBER_URC			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	SUBSCRIBER_ID	:	LONG	: 1
FIELD	=	URC	:	LONG	: 1
FIELD	=	FLAGS	:	BIN	: 1
TABLE	=	TEAM_MEMBER			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	TEAM_SUBSCRIBER_ID	:	LONG	: 1
FIELD	=	SUBSCRIBER_ID	:	LONG	: 1
FIELD	=	FLAGS	:	BIN	: 1
TABLE	=	TECHNICIAN			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	TECHNICIAN_ID	:	LONG	: 1
FIELD	=	NAME	:	BIN	: 26
FIELD	=	PIN	:	SHORT	: 1
FIELD	=	FLAGS	:	BIN	: 1
TABLE	=	TECHNICIAN_TERMINAL			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	TECHNICIAN_ID	:	LONG	: 1
FIELD	=	TERMINAL_ID	:	BIN	: 6
FIELD	=	AUTHORIZATION_FLAGS	:	BIN	: 1
TABLE	=	TERMINAL			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	TERMINAL_ID	:	BIN	: 6
FIELD	=	LOCATION_ID	:	LONG	: 1
FIELD	=	LAN_ADDRESS	:	BIN	: 4
FIELD	=	FLAGS	:	BIN	: 1
FIELD	=	SERIAL_NUMBER	:	BIN	: 20
FIELD	=	HW_CAPABILITIES	:	BIN	: 10
FIELD	=	ATTRACT_SCREEN	:	LONG	: 1
FIELD	=	SYSTEM_FILESET_ID	:	LONG	: 1
TABLE	=	TOURNAMENT			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	TOURNAMENT_ID	:	LONG	: 1
FIELD	=	SHORT_NAME	:	BIN	: 28
FIELD	=	NAME	:	BIN	: 72
FIELD	=	START_DATE_TIME	:	LONG	: 1
FIELD	=	END_DATE_TIME	:	LONG	: 1
FIELD	=	TOURNAMENT_SCOPE	:	BIN	: 1
FIELD	=	FLAGS	:	BIN	: 1
FIELD	=	SPONSER	:	BIN	: 40
FIELD	=	ICON	:	LONG	: 1
FIELD	=	SPLASH_SCREEN	:	LONG	: 1
FIELD	=	PERCENT_MONEY_TO_POOL	:	BIN	: 1
FIELD	=	CURRENT_POOL_VALUE	:	LONG	: 1
FIELD	=	PLAYS_TO_DATE	:	LONG	: 1
FIELD	=	LAST_UPDATE_DATE_TIME	:	LONG	: 1

TABLE	=	TOURNAMENT_URC			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	TOURNAMENT_ID	:	LONG	: 1
FIELD	=	URC	:	LONG	: 1
FIELD	=	FLAGS	:	BIN	: 1

TABLE	=	URC_VALUE			
FIELD	=	RECORD_ID	:	BIN	: 6 : PK
FIELD	=	URC	:	LONG	: 1
FIELD	=	RESTRICTED_STRING	:	BIN	: 30
FIELD	=	FLAGS	:	BIN	: 1

Working tables - not replicated from EDS server

TABLE	=	W_AD_EXPOSURE			
FIELD	=	RECORD_ID	:	LONG	: 1 : PK
FIELD	=	TARGET_ID	:	LONG	: 1
FIELD	=	SUBSCRIBER_ID	:	LONG	: 1
FIELD	=	PLAY_DATE_TIME	:	LONG	: 1

TABLE	=	W_AD_EXPOSURE_COUNTS			
FIELD	=	RECORD_ID	:	LONG	: 1 : PK
FIELD	=	TARGET_ID	:	LONG	: 1
FIELD	=	TOTAL_PLAYS_TODAY	:	SHORT	: 1
FIELD	=	TOTAL_PLAYS_TO_DATE	:	LONG	: 1

TABLE	=	W_CONTENT_CACHE			
FIELD	=	RECORD_ID	:	LONG	: 1 : PK
FIELD	=	CONTENT_ID	:	LONG	: 1
FIELD	=	LOCAL_PATH_SIZE	:	SHORT	: 1
FIELD	=	LOCAL_PATH	:	VARBIN	: 1

TABLE	=	W_COUPONS_ISSUED			
FIELD	=	RECORD_ID	:	LONG	: 1 : PK
FIELD	=	COUPON_ID	:	LONG	: 1
FIELD	=	RECEIPT_ID	:	BIN	: 6
FIELD	=	TERMINAL_ID	:	BIN	: 6
FIELD	=	SUBSCRIBER_ID	:	LONG	: 1
FIELD	=	ISSUE_DATE_TIME	:	LONG	: 1
FIELD	=	FLAGS	:	BIN	: 1

TABLE	=	W_DOWN_TIME			
FIELD	=	RECORD_ID	:	LONG	: 1 : PK
FIELD	=	START_DATE_TIME	:	LONG	: 1
FIELD	=	END_DATE_TIME	:	LONG	: 1
FIELD	=	TECHNICIAN_ID	:	LONG	: 1

TABLE	=	W_FILE_CACHE			
FIELD	=	RECORD_ID	:	LONG	: 1 : PK
FIELD	=	FILE_ID	:	LONG	: 1
FIELD	=	LOCAL_PATH_SIZE	:	SHORT	: 1

FIELD	=	LOCAL_PATH	:	VARBIN	:	1
TABLE	=	W_LEADERBOARD				
FIELD	=	RECORD_ID	:	LONG	:	1 : PK
FIELD	=	LEADERBOARD_ID	:	LONG	:	1
FIELD	=	LEADERBOARD_DATE_TIME	:	LONG	:	1
FIELD	=	FLAGS	:	BIN	:	1
FIELD	=	MAX_LEADERS	:	SHORT	:	1
TABLE	=	W_LEADERBOARD_LEADER				
FIELD	=	RECORD_ID	:	LONG	:	1 : PK
FIELD	=	LEADERBOARD_ID	:	LONG	:	1
FIELD	=	SUBSCRIBER_ID	:	LONG	:	1
FIELD	=	ALIAS	:	BIN	:	26
FIELD	=	LOCATION_NAME	:	BIN	:	26
FIELD	=	LOCATION_CITY_STATE	:	BIN	:	26
FIELD	=	PRIZE_NAME	:	BIN	:	26
FIELD	=	SCORE	:	LONG	:	1
FIELD	=	SCORE_DATE_TIME	:	LONG	:	1
TABLE	=	W_LEADERBOARD_RANKING				
FIELD	=	RECORD_ID	:	LONG	:	1 : PK
FIELD	=	LEADERBOARD_ID	:	LONG	:	1
FIELD	=	RANK	:	SHORT	:	1
FIELD	=	SUBSCRIBER_ID	:	LONG	:	1
TABLE	=	W_LOCAL_LEADERBOARD				
FIELD	=	RECORD_ID	:	LONG	:	1 : PK
FIELD	=	LEADERBOARD_ID	:	LONG	:	1
FIELD	=	LEADERBOARD_DATE_TIME	:	LONG	:	1
FIELD	=	MAX_LEADERS	:	SHORT	:	1
TABLE	=	W_LOCAL_LEADER				
FIELD	=	RECORD_ID	:	LONG	:	1 : PK
FIELD	=	LEADERBOARD_ID	:	LONG	:	1
FIELD	=	RANK	:	SHORT	:	1
FIELD	=	SUBSCRIBER_ID	:	LONG	:	1
FIELD	=	ALIAS	:	BIN	:	26
FIELD	=	SCORE	:	LONG	:	1
FIELD	=	SCORE_DATE_TIME	:	LONG	:	1
TABLE	=	W_LOYALTY_POINT_AWARDS				
FIELD	=	RECORD_ID	:	LONG	:	1 : PK
FIELD	=	SUBSCRIBER_ID	:	LONG	:	1
FIELD	=	LOYALTY_PROGRAM_ID	:	LONG	:	1
FIELD	=	POINTS_AWARDED	:	SHORT	:	1
FIELD	=	AWARD_DATE_TIME	:	LONG	:	1
TABLE	=	W_QUEUE				
FIELD	=	RECORD_ID	:	LONG	:	1 : PK
FIELD	=	TERMINAL_ID	:	BIN	:	6
FIELD	=	AGE	:	SHORT	:	1

FIELD	=	QUEUE_TIME	:	LONG	:	1	
FIELD	=	EVENT_TYPE	:	BIN	:	1	
FIELD	=	EVENT_DATA_SIZE	:	SHORT	:	1	
FIELD	=	EVENT_DATA	:	VARBIN	:	1	

TABLE	=	W_REDEMPTION_HISTORY					
FIELD	=	RECORD_ID	:	LONG	:	1	: PK
FIELD	=	REDEMPTION_ID	:	LONG	:	1	
FIELD	=	TIMESTAMP	:	LONG	:	1	
FIELD	=	SCORE	:	LONG	:	1	
FIELD	=	PAR_LEVEL_PAID	:	BIN	:	1	
FIELD	=	SUBSCRIBER_ID	:	LONG	:	1	
FIELD	=	CASH_AMOUNT_PAID	:	LONG	:	1	

TABLE	=	W_REDEMPTION_LOCAL_POOL					
FIELD	=	RECORD_ID	:	LONG	:	1	: PK
FIELD	=	REDEMPTION_ID	:	LONG	:	1	
FIELD	=	LOCAL_POOL_VALUE	:	LONG	:	1	

TABLE	=	W_REDEMPTION_PAR_LEVEL					
FIELD	=	RECORD_ID	:	LONG	:	1	: PK
FIELD	=	REDEMPTION_ID	:	LONG	:	1	
FIELD	=	PAR_LEVEL	:	BIN	:	1	
FIELD	=	ADJUSTED_PAR_SCORE	:	LONG	:	1	

TABLE	=	W_SERVICE_ACCESSES					
FIELD	=	RECORD_ID	:	LONG	:	1	: PK
FIELD	=	SERVICE_ID	:	LONG	:	1	
FIELD	=	PROFILE	:	BIN	:	1	
FIELD	=	START_DATE_TIME	:	LONG	:	1	
FIELD	=	END_DATE_TIME	:	LONG	:	1	
FIELD	=	SUBSCRIBER_ID	:	LONG	:	1	
FIELD	=	CASH_FUNDS_USED	:	LONG	:	1	
FIELD	=	ACCOUNT_FUNDS_USED	:	LONG	:	1	

TABLE	=	W_SERVICE_LEADERBOARD					
FIELD	=	RECORD_ID	:	LONG	:	1	: PK
FIELD	=	SERVICE_ID	:	LONG	:	1	
FIELD	=	PROFILE	:	BIN	:	1	
FIELD	=	LEADERBOARD_ID	:	LONG	:	1	

TABLE	=	W_TOURNAMENT_LOCAL_POOL					
FIELD	=	RECORD_ID	:	LONG	:	1	: PK
FIELD	=	TOURNAMENT_ID	:	LONG	:	1	
FIELD	=	LOCAL_POOL_VALUE	:	LONG	:	1	

I claim:

1. A system for controlling a customer reward system comprising:

- 5 (a) a first database for storing customer identifications, and for accumulated loyalty points awarded to the customer,
- (b) an administration terminal for establishing loyalty point values associated with any of plural
- 10 predetermined activities, and for storing the values and identities of associated activities, in a second database,
- (c) a reading terminal for reading the identity of a customer at a location of the terminal,
- 15 (d) first apparatus located in the region of the reading terminal for detecting an activity of the customer, and
- (e) second apparatus for accessing the second database, looking up the activity of the customer, and
- 20 depositing corresponding loyalty points in the first database in association with an identification of the customer.

2. A system as defined in claim 1, including a game

25 terminal for detecting an activity of the customer which is the achievement of a particular score range on the game terminal and reporting the score to said second apparatus.

3. A system as defined in claim 1, in which said

30 first apparatus offers at least one of goods and services to a customer, and for reporting accessing of the at least one of goods and services by the customer to said second apparatus.

35

4. A system as defined in claim 3 including apparatus for loading the second database to a decision support server memory, and further including a regional server for storing the first database and for accessing
5 the second database in the decision support server from time to time to obtain said established loyalty point values associated with said predetermined activities.

5. A system as defined in claim 4, the decision
10 support server optimizing database data for transmission to plural regional servers and for propagating the database data to the plural regional servers from time to time.

15 6. A system as defined in claim 5 in which the first apparatus is a game terminal, the game terminal detecting an activity of the customer which is the achievement of a particular score range on the game terminal and reporting the score to an associated regional terminal.

20 7. A system as defined in claim 6, wherein the second database includes handicap specifying parameters, and in which the decision support server accesses the handicap parameters associated with a particular player
25 or demographic or with a game, and optionally accesses a loyalty point parameter to be awarded for the achievement of the score, and the decision support server providing the handicap parameter and optionally the loyalty points to an associated regional server for computing and
30 storing at least one of a handicapped score and loyalty points in the first database in association with the identification of the customer.

8. A system as defined in claim 4 in which the
35 decision support server operates in real time with the

regional server.

9. A system as defined in claim 4 for downloading data from the first database to the second database which
5 at least differs from data stored at the second database, from time to time.

10. A system as defined in claim 4 for replicating predetermined data stored in the second database, to the
10 first database from time to time.

11. A system as defined in claim 3 in which the accessing of the at least one of the goods and services by the customer causes decrementing of loyalty points
15 stored in association with the customer identification, of a number of loyalty points predetermined at the administrator terminal and stored in the second database.

12. A system as defined in claim 3, including a
20 printer associated with at least one of the reading terminal and second apparatus, for printing and dispensing a coupon having an imprinted value and optionally a product or service indicator thereon under control of parameters specified on the administrator
25 terminal and stored at least in the second database, the value and optional product or service being stored in the first database in association with a customer identification.

30 13. A system as defined in claim 12, including a coupon redemption input device, the second apparatus for accessing the first database for checking the read coupons, providing an acceptance or refusal indication, and in the case of acceptance, either marking the coupon
35 in the first database as used or deleting record of the

coupon.

14. A system as defined in claim 13, the second
apparatus for providing an acceptance indication as a
5 start signal to an automatic service or product
dispensing machine.

15. A system as defined in claim 14 in which the
automatic service dispensing machine is one of a game, a
10 public PC, a vending machine, a pay-phone or a video-
phone.

16. A system as defined in claim 1 in which the
administrator terminal is comprised of plural terminals
15 at least some of which are disposed at remote locations.

17. A method of controlling a customer reward system
comprising:

(a) distributing identification elements to
20 prospective customers each of which store unique customer
identifications,

(b) detecting the presence of an identification
element at a terminal,

(c) receiving and storing at least one of currency
25 credits, loyalty points credits and coupon credits in a
database record associated with a customer identification
based on at least one of a currency deposit and an
activity undertaken by a customer,

the loyalty points and coupon credits being
30 predetermined by an administrator and are variable
depending on the activity undertaken by the customer and
at least one of: an identity of a merchant or machine
providing a product or a service, a total number or
incremental number or skill level or persons which
35 previously availed themselves of a product or service, an

advertisement presented on a display located adjacent to an identified customer, a time interval or the real time when the product or service is provided, a skill bracket or handicapped skill achieved by the customer of an activity, a handicap attributed to a machine which provides a product or service, an interval since an activity was undertaken by the customer or by other customers or by customers of a particular demographic profile, a classification in which the customer belongs, and a demographic profile of the customer.

18. A method as defined in claim 17 including storing parameters defined by the administrator for determining at least one of loyalty points and coupon credits, and providing the parameters to a server for calculation of credits and coupons for distribution to customer records upon determination of a particular activity having been undertaken by the customer.

19. A method as defined in claim 18 including receiving at a terminal the identity of a customer and a request to redeem at least one of loyalty points and a coupon for at least one of a service, goods or currency, checking the database record associated with the identity of the customer, sending an authorization signal to the terminal, and using the authorization signal to control provision of the service, goods or currency to the identified customer.

20. A method of controlling a customer reward system comprising:

- (a) distributing identification elements to prospective customers each of which store unique customer identifications,
- (b) detecting the presence of an identification

element at a terminal,

(c) receiving and storing loyalty point credits in a database record associated with a customer identification based on at least one of a currency deposit and an

5 activity undertaken by a customer,

(d) redeeming loyalty point credits by any of plural unrelated merchants at any of plural redemption terminals,

(e) reporting loyalty point credits and redemptions
10 undertaken by each of the plural merchants to an administrator terminal via a communication network, and

(f) settling credits and redemptions of loyalty points from time to time as between the merchants and administrator,

15 whereby the loyalty points are used as a medium of exchange between the merchants and administrator via the network and the terminals.

21. A method as defined in claim 20, in which the
20 loyalty points and coupon credits are predetermined by the administrator terminal and are variable depending on the activity undertaken by the customer and at least one of: an identity of a merchant or machine providing a product or a service, a total number or incremental
25 number or skill level or persons which previously availed themselves of a product or service, a time interval or the real time when the product or service is provided, a skill bracket or handicapped skill achieved by the customer of an activity, a handicap attributed to a
30 machine which provides a product or service, an interval since an activity was undertaken by the customer or by other customers or by customers of a particular demographic profile, and a demographic profile of the customer.

35

22. A method for controlling a customer reward system comprising:

- (a) establishing merchant, customer and administrator loyalty point databases,
- 5 (b) depositing loyalty points in a designated customer's database or in plural customer databases,
- (c) redeeming loyalty points of a customer by a merchant providing a goods or services, and decrementing the database of the customer by a predetermined number of
- 10 loyalty points and incrementing the database of the merchant by the predetermined number of loyalty points,
- (d) decrementing a further predetermined number of loyalty points from the database of the merchant and incrementing the database of the administrator by the
- 15 further predetermined number of loyalty points.

23. A method as defined in claim 22, and from time to time, settling values of loyalty points to monetary, merchandise or services values as between

20 merchants and the administrator.

24. A method as defined in claim 22, including incrementing the database of specific customers with additional loyalty points based on predetermined

25 activities undertaken by the specific customers.

25. A method as defined in claim 22, including decrementing loyalty points from the database of a merchant, and incrementing the number of loyalty points

30 held in the database of the customer, upon a customer purchasing goods or services from the merchant, and incrementing the number of loyalty points held in the database of the customer.

26. A method as defined in claim 22 including running an advertisement on behalf of an advertising merchant, decrementing loyalty points from the database of the advertising merchant upon running the advertisement and
5 incrementing the database of the administrator by the number of loyalty points decremented from the latter merchant due to running the advertisement.

27. A method as defined in claim 26, including
10 identifying a customer adjacent a display or loudspeaker which can run the advertisement, and incrementing the database of the identified customer with a predetermined number of loyalty points upon reproducing the advertisement by the display or loudspeaker.

15

28. A method for controlling a customer reward system comprising:

- (a) establishing merchant, customer and administrator loyalty point databases,
- 20 (b) depositing loyalty points in a designated customer's database or in plural customer databases,
- (c) redeeming loyalty points of a customer by a merchant providing a goods or services, and decrementing the database of the customer by a first predetermined
25 number of loyalty points and incrementing the database of the administrator by the first predetermined number of loyalty points, and
- (d) decrementing a further predetermined number of loyalty points from the database of the administrator
30 which is smaller than the first predetermined number of loyalty_points and incrementing the database of the merchant by the further predetermined number of loyalty points.

35

29. A method as defined in claim 28, and from time to time, settling values of loyalty points to monetary, merchandise or services values as between merchant and the administrator.

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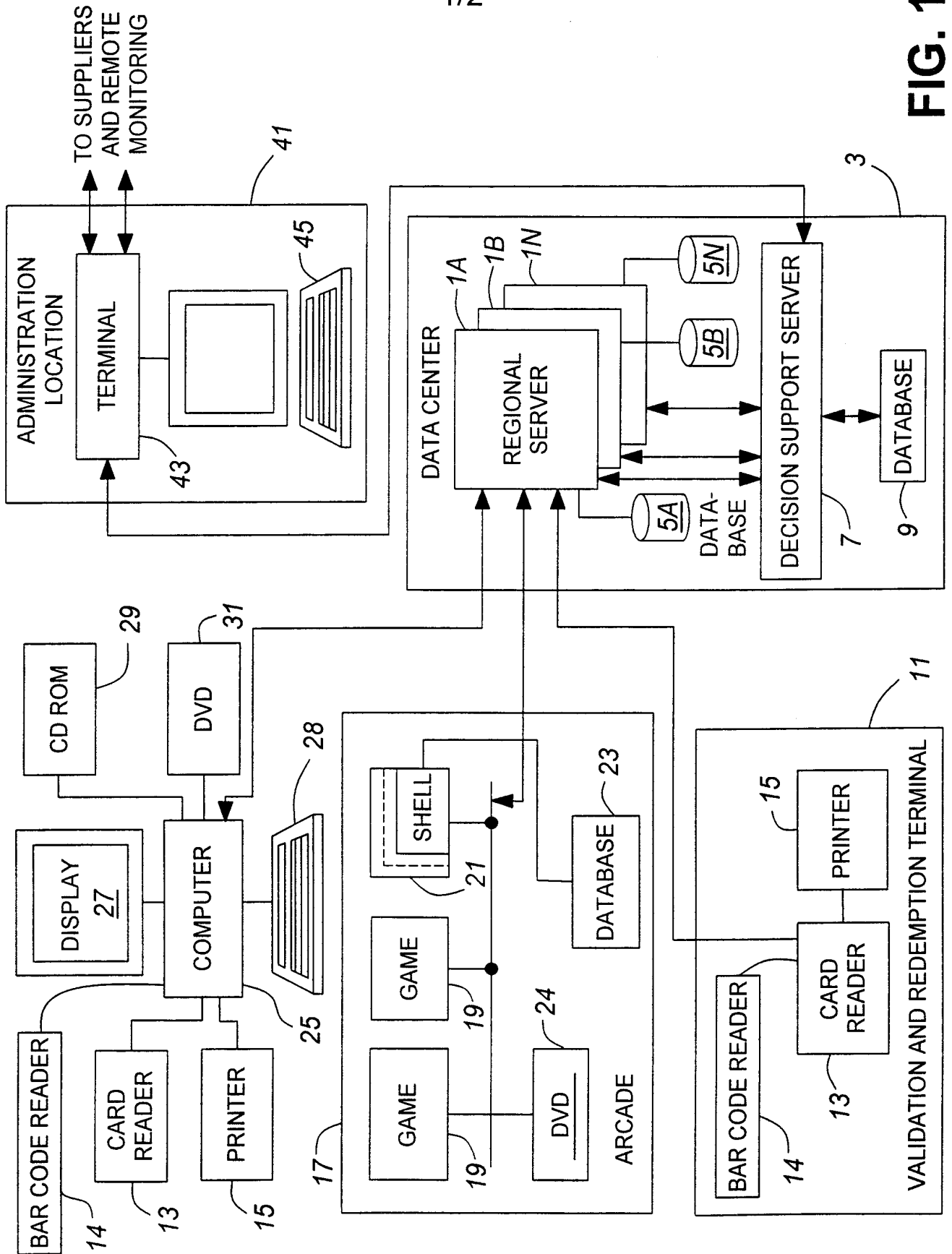
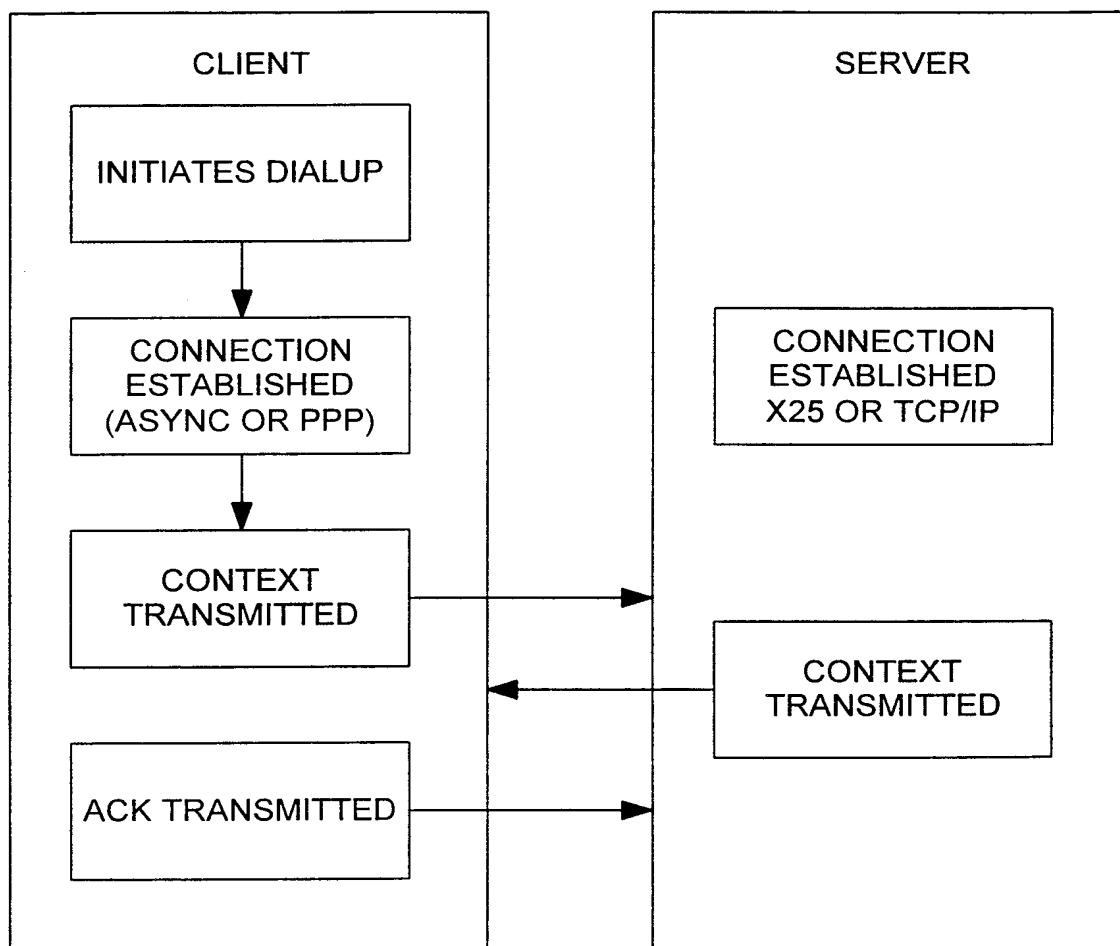


FIG. 1

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**FIG. 2**

INTERNATIONAL SEARCH REPORT

Int. Application No

PCT/CA 99/01198

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 25242 A (CARLSON COMPANIES, INC.) 11 June 1998 (1998-06-11) the whole document	1-29
X	GB 2 274 349 A (HTEC LIMITED) 20 July 1994 (1994-07-20) the whole document	1-29
X	US 5 297 205 A (AUDEBERT ET AL) 22 March 1994 (1994-03-22) the whole document	1-29

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

4 April 2000

Date of mailing of the international search report

12/04/2000

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. Application No

PCT/CA 99/01198

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